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REMARKS ON THINGS IN GENERAL.....No. III.

BY A RAMBLER IN THE MOUNTAINS OF VIRGINIA,

With Notes by the Editor of The Farmers' Library, to whom they were addressed.

WARM SPRINGS, Bath Co., July 18, 1847.

You need not be told that this is only one, however distinguished, out of a great variety of medicinal springs that find their way to the surface of the earth among these mountains of Western Virginia, passing in their way, as we must suppose, close by fiery furnaces and through filters of salt—for here are, besides, within a day or two's ride of each other, the *Hot*, the *Sweet*, the *Red Sweet*, the *White Sulphur* and the *Red Sulphur*, and the *Salt Sulphur* and the *Blue Sulphur Springs*, claiming to be specifics for phthisis laryngitis, bronchitis—for dyspepsia and diarrhea—for diseases of the liver, the heart, the bladder and the kidneys, and for all the other diseases and ills that flesh is heir to. Welling up to the light half way between the great marts and thoroughfares of life and business in the East and the West, it would seem as if they were intended to draw together, in the season of most leisure, from all its extremes, brethren of a common country for social and political communion; and doubtless their political uses in this way would be equal to their sanatory effects, were it possible to reach them as easily as railroads and steamboats take us in vast swarms to other places of summer resort. In the place of hundreds there would be thousands at all these mountain springs; and yet it may be questioned whether, to the valetudinarian of the cities, the long ride and jolting over the mountains is not more than half the battle. When the late celebrated Dr. Brown, of Baltimore, was consulted as to the particular waters best suited to his patients, he usually inquired the *distances* respectively, and always recommended the most *distant place*! For those who would have something better than a mere hasty newspaper notice, I would recommend Mr. Burke's "Mineral Springs of Virginia." From recent personal experience I can speak yet only of the WARM SPRINGS—now, and for a few years past, under the immediate control of the proprietor, Doctor John Brockenburgh, former President of the Bank of Virginia.

The Bath is of a circular form, forty feet in diameter and between five and six feet deep, and so perfectly transparent that a man of Christian temper with half an eye might read the words "HONOR THE PLOW IN PREFERENCE TO THE SWORD" in 'small caps,' at the bottom of it. The depth, however, may be regulated at pleasure, and very quickly, for as the water comes bubbling up from the bottom, and breaking in globules resembling quicksilver on its surface, the whole volume of it passes off and is every moment renewed, at the rate of some thousand gallons a minute.

Truly has it been said by Col. Perkins, that all who have described this noble fountain write with enthusiasm; nor is it indeed to be wondered at, for the

world, as he says, "may be well challenged for its equal." Its temperature, buoyancy, refractive power, transparency—all invest it with indescribable luxury to the feelings and the sight; and no less truly has it been added by Mr. Burke that the effect on the human frame is dazzling; could Damon have caught a glance at his Musidora in *such a bath*, it were indeed a trial of Love's respectful modesty to withdraw his gaze!

"Then to the flood she rushed; the parted flood
Its lovely guest with closing waves received,
And every beauty softening, every grace
Flushing anew, a mellow lustre shed,
As shines the lily through the crystal mild,
Or as the rose amid the morning dew
Fresh from Aurora's hand more sweetly glows"

The water of this celebrated spring is of the average temperature of 98°—the same in winter as in summer. It and the gas which is constantly escaping from it, have been carefully analyzed by Prof. Rogers, and from this account, says Mr. Burke, they appear to contain neutral salts and various gases, which act as a gentle aperient, diuretic and diaphoretic. The large proportion of Epsom salts, he says, doubtless gives the water its aperient quality, while the carbonic acid it is found to contain, and sulphuretted hydrogen, give tone and energy to the stomach.

The bath itself is so captivating and voluptuous that it becomes necessary to warn those who enjoy it for the first time against too long indulgence. Mr. Jefferson is said to have done himself serious injury in that way, but he would plunge and remain in it nearly an hour at a time, three times a day. An account of this bath appeared some time since in the Southern Literary Messenger, with the simple averment, as to the accommodations and comforts, that they were "fully equal to those of any watering-place in Virginia." The writer might have fearlessly said, if they were as good and as ample then as now, that they were equal to any in the United States. How, indeed, could it be otherwise?—owned and managed as this establishment now is, under the personal supervision of one of the very best bred and most traveled gentlemen of the Old Dominion in her palmyest days—with his own cooks and servants, brought up from Richmond, where his house, ever the seat of the most refined and liberal hospitality, will long be remembered by those whose learning, refinement and patriotism gave them claims to its enjoyment. The roads through all these mountains have been well graded, and made as good and safe as mountain roads can be. The Warm Springs Mountain, through a gap of which you come in sight of this establishment at the distance of a mile, as you approach it to breakfast, is one of the most lofty in the range to which it belongs, being nearly 3,000 feet above tide-water. All along the ridge of it immense rocks break through the green covering, in naked and irregular projections, like so many enormous vertebræ. Climbing to the top of the middle and highest one of these, you get a prospect of vast extent on all sides, reaching eastward even to the "Blue Ridge." And here, on the face of this eternal rock, braving lightning and rain, tempest and sunshine, instead of a host of obscure names, inscribed usually in such places as so many vain memorials of egotism and vanity, you find only the letters 'H. CLAY,' deeply engraved by one of his many votaries. Appropriate tablet for such a name!—at once elevated and enduring! After all, he but shares the common lot of men possessed of great intellectual power, animated by a fervid, uncompromising temperament. If they raise up many implacable enemies, they surround themselves also with a host of ardent friends, bound to them by their high qualities as with "hooks of steel."

But I must not forget to tell you how, and how soon, you can be put down in the midst of these mountain springs, should you be disposed to come. You leave Baltimore any day—we will say Thursday morning at half past seven—dine at Harper's Ferry, and reach Winchester by the Railroad, in time to depart that afternoon in the stage; you breakfast on Friday morning at Harrisburg, and reach Stanton by an excellent Macadamized turnpike, on Friday to dinner; sup and lodge quietly that night at Cloverdale, and on Saturday morning breakfast here at the Warm Springs, and before night arrive at the celebrated old "White Sulphur"—where, as I learn, my old friend Caldwell still flourishes, as it were in "perpetual youth." May he still so live another "three score and ten," with

Hygeia for his handmaid, to receive the pilgrims that must ever gather from all quarters around his health-restoring fountain, himself a living and cheerful witness of its virtues. It is reported there are two hundred and twenty there now, but double that number would not incommode him. Farish & Ficklin, old contractors at Charlottesville, have again covered these and other principal mail-routes with their excellent stages, and teams, and drivers, and their names are a sufficient guaranty that all in that department is 'O. K.'

In the field, as well as at the *table d'hôte*, two senses have convinced me that no country can be better adapted for the growth and perfection of mutton than is this, for finer I never saw or tasted.

In the hope of having time on my return for a more leisurely agricultural survey, let it only be noted here that I have met with a grass which is altogether new to me, and promises to spread and be of great value. When I say new, I might probably say that I saw the same grass growing luxuriantly in Dr. Thornton's meadows at Montpelier. It seems to be identical with the greensward, except that it is more gigantic. The blades of the second growth are very silky; and I understand that both horse and ox, for whose judgment I entertain profound deference, delight to graze on it. In rich, clayey, low ground, it is very luxuriant, and is overcoming the timothy. How or when it came here no one can tell me. Doctor B. informs me that it has increased wonderfully during the few years he has been here, although it has been annually mowed and grazed on. It ripens rather earlier than timothy, or about the time the red-clover blossom becomes brown. I learn that it abounds on the low lands of the South Branch of the Potomac, and is deemed very valuable for grazing, and Dr. B. is of opinion that if mowed in time it would yield in his meadow from 1½ to 2 tons of the best sort of hay. From all I can learn of its character, particularly as a superior mowing-grass, it is probable that measures will be taken to distribute it widely. Whatever more may be learned of it worthy of note, in my progress westward, you shall know. If good luck should throw Dr. Bachman in my way, I should hope to gather something, in regard to this and other grasses, worthy of your Journal. By the way, they find the Volunteer Red Clover a great pest in their timothy meadows hereabout, as the stalk becomes exceedingly hard before the timothy is sufficiently matured to make the best hay. You are aware that while clover makes the better hay for being cut earlier, timothy should stand to go well to seed.—I hope to gain, farther westward, better information, too, as to the system of breeding and rearing their stock cattle.

Mem.—There are few things to which these valleys are more congenial than the *Hop*; in fact, *Vines* of every kind seem to glory in the climate, and greatly beautify the country as you pass through it.

WHITE SULPHUR SPRINGS, Greenbrier County, Va., July 28, 1847.

If, before you die, you wish to see "the man with the cue," you may find him here, at the good old *White Sulphur*, in the person of the worthy Proprietor. He really looks not five years older than he did some twenty-five years ago; his politics as sound, his friendships as stanch, and his laugh as loud and honest as ever! It would do his Baltimore friends good to see how manfully the old gentleman maintains his ground, single-handed, against the fell Destroyer with his inexorable long scythe, before which all things perishable must fall at last.

Louisiana, Virginia, Missouri, Maryland, North Carolina, Georgia, Tennessee, New-York, Mississippi, Ohio, South Carolina, Kentucky, Alabama, Pennsylvania, Massachusetts, Rhode Island, New-Hampshire, Texas and Cuba all have their representatives here now in convention. Not a political convention, mind ye! Not at all. Ours here is a convention of gentlemen of all parties, met to drink at the pure fountain of health, to indulge in the pleasures of social intercourse, to interchange knowledge, and to recreate in the mountain air, and thus regain and accumulate what vigor we may for the several duties that await us, each in his sphere, in the busier seasons approaching.

Those who have not been for some years at the several watering-places in these mountains—which, when once you are here, seem to shut you out from the great world of toil and care—can have no idea of the improvements that have been made in the mean time.

Familiar as many of your city readers may be with the arrangements and

economy of most of these great places of summer resort, where some come to get rid of *ennui*—some to empty and some to replenish their purses—some to preserve and some to regain their health—you may yet have a thousand readers in the country, toiling on their farms, to whom even the most imperfect sketch of this one, among the most celebrated watering-places in the world, may not be unacceptable.

—The White Sulphur Spring itself, then, they may be told, is “situated in an elevated and beautifully picturesque valley, hemmed in by mountains on every side, and is in the midst of the celebrated ‘spring region.’ Its elevation above tide-water is two thousand feet. It bursts with unusual boldness from rock-lined apertures, and is inclosed by marble casements five feet square and three and a half feet deep. Its temperature is 62° Fahrenheit, and remains uniformly the same, winter and summer. The principal spring yields about eighteen gallons per minute, and is never increased or diminished by any changes of weather. The water is perfectly clear and transparent, and deposits copiously, as it flows over a rough and uneven surface of rocks, a *white*, and sometimes, under peculiar circumstances, a *red* and black precipitate, composed in part of its saline ingredients. Its *taste* and *smell*, fresh at the spring, are that of all waters strongly impregnated with sulphuretted hydrogen gas.”

The fountain is inclosed and covered by a circular edifice, about thirty feet in diameter, and supported by pillars, like the cupola of a church or other public building, except that in place of a weathercock, or some religious emblem, the summit is embellished with a large marble figure of Hygeia, the goddess of health, presented by the late Mr. Henderson of New-Orleans, in a spirit of gratitude for the benefit he had received at this noble fountain. Here, then, come the visitors, early in the morning, to gulp down from two to six glasses of water, impregnated chiefly with the sulphates of lime, of magnesia, and of soda.

On this occasion, the ladies—God bless them!—turn out in thick-soled shoes, shawls and bonnets, and seem by no means ambitious of being noticed; while the coarser specimens of the human form divine come enveloped in full winter costume.

Within two hundred yards of the spring, in the center of the valley—which here spreads out nearly to a plane surface—and at the lower end of a lawn of some eight or ten acres, stands the *Dining Hall*, nearly two hundred feet long, with its tables to accommodate, and servants to give the needful attention to, some six hundred guests on occasion.

For lodging and private comfort here the arrangements are altogether different from those you meet at Northern watering-places. There the guests of each establishment—sometimes from one to six hundred—eat and sleep all under one roof; while here, at one *coup d’œil*, you see from one hundred and fifty to two hundred cabins and cottages strung along, at a considerable elevation above the spring, in curvilinear form, adapted to the sinuosities of the mountain-base that skirts the valley, and other irregularities of the site; but still making nearly an oblong square, and occupying a line, I should think, of nearly a mile in its entire length, inclosing an area of some ten or twelve acres, well set in blue-grass, intersected with dry walks for exercise, and ornamented with that *variety* of trees which seems characteristic of this region. Here the native Oak, in all its grandeur; there the symmetrical Sugar Maple; next again the Hickory; and hard by the Locust, of rapid growth itself and congenial to the growth of all about it.

These beautiful forest trees have been so judiciously left and pruned as not to conceal and smother what they were intended to shade and beautify; and make, with the cottages, especially when these are lighted up at night, altogether, a fine panorama, that really seems like the work of magic as compared with my remembrance of its original rude condition.

Distinguished foreigners, Lord Morpeth among them, in their admiration, have pronounced the bath at the Warm Springs and the White Sulphur, for arrangements and extent of accommodation, scenery, and health-giving qualities of the water, far superior to any similar resorts in Europe.

By the word *cabins* you are not to understand rude log huts—not at all! These are all of brick, or neatly framed, finished and painted, with a nice piazza separately railed in for each; and many of them, especially the “Baltimore Row,” displaying handsome and chaste specimens of architecture. This row belongs,

the *usu fruct*, to Baltimore townsmen, Messrs. Ridgely, Hoffman, Barney, Latrobe, Bonaparte, P. Thomas, Patterson and Glenn. On a site yet more elevated, overlooking the whole square, stand the still more considerable and costly establishments of two wealthy Carolinians, Singleton and Hampton. Any one of them is good enough, I should think, "for a prince," as must be anything that is good enough for a *Hampton*.

When the dinner-bell sounds here, it is amusing to see how simultaneously all these cabins are emptied of their tenants, and how even all the dear ladies come flocking to be fed, like pigeons called down from the dove-cot. Well, Sir, after all, what would this world be worth but for them? for 't is *they* that "give to life its lustre and perfume, and we are weeds without them."

Several Baltimoreans are here with and some without their families; among the former I see the distinguished Senator Johnson. Judge Cabell is here too, on his way to the Supreme Court. Here, too, is the venerable Judge Brooke, eighty-four years old, of the good old Revolutionary army breed—straight as an Indian—keeping well-up in his costume with the modern cut, except that he would "go his death" upon the *white cravat*!—emblem of the old school to which he belongs; in deportment and manners being courteous and communicative, without giving or taking unseemly liberties. Here, too, is Governor Coles, full of intelligence and interesting reminiscences of the times of Madison and Monroe, those palmy days of the Republic—together with his amiable family; and Dr. Mercer, a quiet, unostentatious, exceedingly well-informed and affable millionaire planter of Mississippi—resident of New-Orleans in winter, where and with whom Mr. Clay has spent his last two. *Mem.*—What think you of a plantation with four or five hundred cattle, eight hundred swine, and yet not making more than half its supply of provisions?

I must not close this rude sketch without a word about the *roads and the conveyances*. You leave Baltimore at 7½ A. M. on the railroad, reach Winchester that evening, and take Farish & Ficklin's superior line of post-coaches by a Macadamized turnpike one hundred miles up the Valley of Staunton, supping and lodging next night comfortably at Cloverdale. The second morning you breakfast at the "*Warm Springs*" on "*mountain mutton*"—chops, venison steaks, and bread in all possible and excellent varieties—French-rolls, biscuit, waffles, flannel-cakes, muffins and Indian-corn bread, in the cook only knows how many forms, from egg-pone and batter-cakes to griddle-cakes and "scratch-backs!" Don't forget, if you have never seen it, to run and look and wonder at the *warm bath*, 98° Fahrenheit, forty feet diameter and six feet deep, if so deep you like to have it, and withal as clear as crystal and sparkling as Champagne! But mind, if once you plunge into it, there is no knowing when you will get away. Mr. Jefferson came near dreaming his life away in it, so delicious did he find it. Folks usually postpone, until they return from the other Springs, to linger there for weeks, until Jack Frost comes along in earnest to dispel the fogs and fevers of the low grounds." I enjoyed it for ten days *en passant*. If you are stiff in your joints, or drawn up with *rheumatiz*, you can stop and get limbered, and straightened out and set up, at Dr. Goode's *Hot Spring*, temperature 108°! Surely it must come from somewhere very near to Old Nick's furnace!

WHITE SULPHUR, Greenbrier County, August 4, 1847.

Turning back for a general review of the habits and husbandry of the region through which I have passed, from Fredericksburg to Lewisburg, the county town of Greenbrier; and having regard to its climate and capabilities, I should say that as Nature forms it, it offers ample reward for skillful industry and every resource for social enjoyment. Its inhabitants are urbane, hospitable and upright; but, though far from being deficient in knowledge of the general progress of agricultural improvement, in its implements and modes, it must yet in truth be said that not many appear to be sufficiently impressed with the importance of *studying the principles* of that most important of all the arts on which the mind and labors of civilized man can be employed.* In truth they

[* Yet it is, confessedly, by a better understanding of these principles—by the increasing knowledge of the *why and the wherefore* as to the nature of the soils, the constituents of

appear not yet, on the eastern side of Thornton's Gap especially, to have awakened to the revolution in the commercial circumstances of their position, which has been effected by the extended application of steam and the construction of works of internal improvement—works which have raised up competitors in their old branches of husbandry, against whom it is obviously impolitic if not impossible for them to contend. How is it possible to follow *grain-growing* successfully, and as a principal business, at such a distance from all available markets, and at such cost of transportation, on land that does not average more than seven bushels of wheat and twenty of Indian corn to the acre? and especially where there is resident in the soil neither lime nor plaster, and yet more, where not one farmer in one hundred pursues systematically any means of supplying the want of mineral and artificial fertilizers, by collecting materials to augment, and by saving every particle of, his *stable and barn-yard manures*. To the more economical farmers in other parts of the country, a plain statement of the universal waste of these materials in the South would be as incredible as it is injurious and disparaging to those who commit it. A farmer of the highest order of intelligence, in Rappahannock County, on a beautiful estate of a thousand acres, with sixty or eighty head of cattle and horses, besides hogs and sheep, himself observed that he made hardly manure enough *for his garden!* while his hundred acres of wheat, very near his homestead and stables, was not expected to yield more than seven or eight bushels to the acre, and that on land with a due portion of clay, and otherwise well adapted to grain as well as grass. It would not, however, be fair even to allude to this case, were it not believed to be a fair specimen of general improvidence as to the accumulation and use of home-made manure. I must, therefore, be permitted to declare that in all my route, as far into Western Virginia as the Seat of Government of Greenbriar County, and anxious to find the contrary, I have not yet seen an instance of proper, systematic, farmer-like solicitude and attention on the score of home-made manure. The greatest progress in improvement, and the best management on a considerable scale, as far as I had an imperfect opportunity to judge, is at the Warm Springs. But if on this point the neighboring farmers were, as they ought to be, as watchful as a hawk for a partridge, you would not see at the hotels, all along the road from Newmarket to Lewisburg, large piles of manure, the daily cleansing of the stables, thrown out and

plants, and the action of mineral, animal, vegetable and atmospheric agencies—that in England the average *increase* in the wheat crop per acre has been brought from 17 up to 26 bushels, since 1821, or an *increase* nearly equal to the average *aggregate* produce of the United States.

We are aware that General Washington instituted extensive inquiries to ascertain the probable average product of the United States, and that these inquiries led to the impression that it might be put down at about 17 bushels; but we are well convinced that either there has been a great reduction in the acreable product of the whole country since, or that some delusive information led to an overestimate at that time. We have lately had occasion to show that the average in Ohio does not go above 20 bushels, and we much doubt if it exceeds 17. Official returns show the average in New-York in 1845 to be under 14; and it may well be questioned whether in Maryland, which gave 3,345,783 bushels in 1839, the average exceeded 8; or whether in Virginia, which gave 10,109,716, it came up to 10. At the rate of 8 bushels for Maryland, it would require about 418,222 acres to produce 3,345,783 bushels. Now her whole surface, exclusive of water, is put down by Darby at 7,040,000 acres—and according to this calculation it would require only every sixteenth acre to be in Wheat to produce the number of bushels stated above, at 8 bushels to the acre; that is, suppose the whole State to be divided into farms of 322 acres, and allowing 8 bushels to the acre it would require only 16 acres to each of those farms to give the 3,345,783 bushels. Allowing 12 bushels to the acre as an average of the U. S., it would require but about 7,000,000 of acres to be in Wheat to produce the 84,823,272 bushels, the whole produce of the Union in 1839; and we venture the belief that the average does not exceed 12 bushels. Finally, we have no doubt that the course recommended by Mr. Minor would, in ten years, go near to double the Wheat crop of the State, adding \$10,000,000 to its income. *Ed. Farm. Lib.]*

exposed to all weathers, from day to day, and so deposited, when it can be done, on hill-sides and precipices, as if it were the express intention that the bounteous rains of heaven, designed to fertilize and replenish the earth, should here be impiously availed of to extract and wash away what every good farmer as fondly regards as the miser does his gold. In view of such improvidence, I could almost find it in my heart to respond approvingly to the sentiment expressed lately at a Farmers' Club, that willingly to let a pint of manure run off from a farm, ought by law to be made a punishable offence against the Commonwealth.

How widely different, Sir, is such management from that described in your Journal where you detail an account of a visit to Mr. HALL, near Lebanon in New-York. From his farm, consisting of only 200 acres—20 in wood and 180 arable, 50 each year under the plow and the residue in grass—he, it seems, sells 4,000 pounds of butter and 15,000 pounds of pork, his hogs averaging 290 pounds. But he makes, be it noted, 150 *cords* of rich manure from his hogs, and 200 from his “teams and cows.” His force, besides being a “whole team” in himself, is but two men through the year, and one for eight months—his usual number of cows at the pail being 22. But lest the reader may suppose that instances drawn from the North are altogether inapplicable to the South, let me avail myself of the reasoning of a native-born son of the Old Dominion, as precisely applicable to all those in that State who think it not essential to make manure; for it would really seem to be impossible that those in the region to which I am referring who persist in wearing out their lands by crops of grain without the application of stable manure, and barn-yard manure, and intervening grass crops, can have read a chain of reasoning, as conclusive as mathematical demonstration, contained in an Address—one of the ablest in the agricultural annals of any country—delivered by FRANKLIN MINOR, Esq., before the Agricultural Society of Albemarle, 1st of November, 1846. Sure am I that all your readers will thank me for suspending my own crude suggestions, while I extract from that admirable performance what is so exactly apposite to the subject in hand. I am not sure that Mr. Minor embraces in his estimate the cost of transportation of the grain to market, though it is presumed he rates the corn and wheat at its actual money value to the farmer, whether at home or abroad. It will be observed, however, that he puts down the average of wheat at 8, and of corn at 25 bushels to the acre—which may be fair as for the general run of unimproved land in Albemarle, but is undoubtedly one bushel too much wheat and five too much of corn for Fauquier, Culpeper and Rappahannock, and about two or three only below the average of wheat in the Valley of Shenandoah, and about right as to their produce in corn. I crave for the following extract from Mr. Minor's Address the earnest attention of every reader of your journal; or if the father who does not like to have his eyes opened to a view of his ruinous old system (preferring to remain in ignorance of the catastrophe to which it is leading him,) will not read it himself, let him have at least the kindness to hand it to those who are being reared under his care, and whom he would like to see embark in their profession with something like an estimate of what it demands of thought and forecast, as an intellectual and profitable occupation. He who would not believe in reasoning like that embraced in this extract, would not believe St. Paul himself, though he were to rise from the dead.

“But even in the absence of all experience, both foreign and domestic, on this subject, is not the profit of improving land susceptible of conclusive demonstration by calculation—by figures which, you know, cannot lie? I shall endeavor to show that it is from the following data, which I believe to be as nearly correct as the nature of the case admits of:

“1. That by bestowing greater attention and more labor on the accumulation of the materials for making manure, and by having better fixtures for saving it and preventing its waste, we can increase the quantity of manure we annually make at an expense which will not exceed *one dollar* for every additional wagon-load so made and delivered on the land.

“2. That land which will bring *five* barrels of corn per acre without any manure, will bring *eight* if manured at the rate of twenty wagon-loads to the acre; that the same land will bring *eight* bushels of wheat after the corn without the manure, and *fifteen* after the corn with manure; and that if seeded with clover after the manure and plastered, it will yield *one and a half* tons of hay to the acre.

“3d. That such land cultivated without manure for twelve years in corn and wheat alternately, and having all the offal of the crops restored to it, may perhaps retain its fertility but cannot improve; and that the same land manured once at the rate before mentioned, and

cultivated in corn, then wheat, and two years in clover, and the same rotation pursued for twelve years, and having also all the offal of the crops restored to it, will continue to yield the increased crops, and will moreover improve in value fifty per cent. supposing the first cost to be ten dollars per acre.

"4. That it costs *six dollars and fifty cents* to cultivate an acre of land in corn and save and house the crop after the mode usual in this country; *three dollars and fifty cents* to seed after corn, harvest, secure and thresh the produce of an acre of land in wheat if it yield eight bushels, and fifty cents more if it yield fifteen bushels; and *two dollars* to mow, cure and stack an acre of hay yielding one and a half tons.

"5. That clover-seed can be bought or raised for *six dollars* a bushel; and ground plaster bought for eight dollars per ton.

"6. That the average price of corn may be taken to be two dollars and a half a barrel, or *fifty cents* per bushel; of wheat *ninety cents* per bushel, and of clover-hay *fifty cents* per hundred weight.

"From these data I have prepared the two following Tables—the first of which exhibits the annual gross product of an acre of land cultivated alternately in corn and wheat for twelve years, the expense of making and saving the crops, and the clear profits per annum; the second showing the gross annual product of the same acre manured the first year with twenty wagon-loads of manure, and cultivated in corn, then wheat, and two years in clover, and the same rotation carried out for twelve years; also the expenses of manure, plaster and clover-seed, the cost of tillage, harvesting, &c., and the clear profit or loss per annum. All the offal of the crops supposed to be returned to the land in each case :

TABLE I.						TABLE II.							
Year.	Kind of crops.	Yield in bushels.	Value of crops.	Expenses of tillage, harvesting, &c.	Clear profit.	Year.	Kind of crops.	Yield in bushels and tons.	Value of crops.	Expenses of tillage, harvesting, &c.	Expenses of manures, clover-seed & plaster.	Clear profit.	Loss.
1	Corn.....	25	\$ 12 50	6 50	6 00	1	Corn.....	40 b	20 00	6 50	20 00		6 50
2	Wheat ..	8	7 20	3 50	3 70	2	Wheat ..	15 b	13 50	4 00		9 50	
3	Corn.....	25	12 50	6 50	6 00	3	Clover ...	1 1/2 t	16 50	2 00	1 50	13 00	
4	Wheat ..	8	7 20	3 50	3 70	4	Clover ...	1 1/2 t	16 50	2 00	50	14 00	
5	Corn.....	25	12 50	6 50	6 00	5	Corn.....	40 b	20 00	6 50		13 50	
6	Wheat ..	8	7 20	3 50	3 70	6	Wheat ..	15 b	13 50	4 00		9 50	
7	Corn.....	25	12 50	6 50	6 00	7	Clover ...	1 1/2 t	16 50	2 00	1 50	13 00	
8	Wheat ..	8	7 20	3 50	3 70	8	Clover ...	1 1/2 t	16 50	2 00	50	14 00	
9	Corn.....	25	12 50	6 50	6 00	9	Corn.....	40 b	20 00	6 50		13 50	
10	Wheat ..	8	7 20	3 50	3 70	10	Wheat ..	15 b	13 50	4 00		9 50	
11	Corn.....	25	12 50	6 50	6 00	11	Clover ...	1 1/2 t	16 50	2 00	1 50	13 00	
12	Wheat ..	8	7 20	3 50	3 70	12	Clover ...	1 1/2 t	16 50	2 00	50	14 00	
			118 20	60 00	58 20				199 50	43 50	26 00	136 50	6 50

"The first Table shows the total profits of an acre of land cultivated without manure and grass, to be \$58 20 for twelve years, or an average annual profit of \$4 85.

"The profits of the same acre, cultivated under a different system with manure, clover and plaster, are, according to the second Table, \$136 50, from which we must deduct \$6 50, the loss sustained the first year, leaving the net profits \$130, clear of all expenses; to which add the increased value of the land at the rate of fifty per cent. for the twelve years, and we have \$135 for the total net profits for twelve years, or \$11 25 per annum—showing an annual difference of \$6 40 an acre, equal in this case to about two hundred and thirty per cent. per annum in favor of improvement by manure, clover and pasture. This would seem to settle the question of profit.

"The calculation is made most favorably to the unmanured land in every respect. In the first place it is supposed that it would not deteriorate under the alternate cultivation in corn and wheat, when it is more than probable that it would be exhausted, yield diminished crops, and decline in value. To prevent this, it might be necessary to rest it every third year. This would diminish the number of corn and wheat crops to *four* each, instead of six as in the Table, and make a difference in the total net profits for the twelve years, of \$19 40. On the other hand, no allowance is made in the second Table for the clover-seed which might be saved each year after cutting the hay; this might be safely put down at half a bushel per acre, or three bushels in the twelve years, which, at six dollars a bushel, would give \$18 to be added to the total profits of the manured land. If we make these allowances, the total profits of the two acres for twelve years will stand thus:

Of the unmanured land	\$38 80
Of the manured land	153 00
Making the difference of total profits for twelve years.....	\$114 20

or \$9 50 per annum, almost the prime cost of the land.

"If we extend the calculation to *ten* acres instead of *one*, the results will be in the same proportion, and we shall have the total profits of ten acres unmanured, and allowance made as above for one year's rest in three, \$388 in twelve years, or \$32 33 per annum; and of the same ten acres manured, and allowance for clover-seed as above, \$1,530 in twelve years, or \$127 50 per annum, making the total difference for twelve years \$1,142. So that every farmer who makes two hundred loads of manure more than his usual quantity, and applies it to ten acres of land such as that described, and pursues the system designated in the Table, with a liberal use of clover-seed and plaster, may calculate on adding \$1,142 to the clear profits of his farm every twelve years; while he who from carelessness and laziness loses the opportunity of making that additional quantity of manure, loses also the chance of realizing an equal sum in the same time.

"If we attribute all the difference to the manure, clover and plaster, (and no other cause of the increased profits is supposed,) then we have the expenditure of \$26, (the cost of the manure, &c.,) yielding in twelve years \$114 20, or about thirty-six per centum per annum. In other words, the Table shows that money and labor expended in the making, saving and application of manure, at an expense not exceeding one dollar for every wagon-load, and accompanied with the use of plaster and clover, yields an annual profit of thirty-six per cent. Rather a better business than shaving at thirty-three and a third, and certainly much more agreeable and honorable. We all know, moreover, that if the shaver loses his money, he must lose along with it the 33 $\frac{1}{3}$ per cent.; so, too, the farmer, who loses a load of manure, loses a dollar which, had it been saved and judiciously used, would have yielded an annual interest of thirty-six per cent. Now the law forbids our taking more than six per cent. for the use of our money, yet what folly do we deem it to throw money away. But the law allows us to make all that we can from our manure: what excessive folly, then, to throw it away, when every dollar's worth of it properly invested will yield us so handsome a return! A wise man has told us that 'a penny saved is two pence clear'; if this be true of money, how much more truly may it be said of manure, that a penny-worth saved is a shilling clear!

"The second Table discloses the fact that the *six clover* crops yield a greater net profit than the *six grain* crops. This will perhaps appear startling to many, but is what all who have investigated the subject were ready to expect. The fact that land in grass yields a higher profit than when cultivated in grain, has been long known and practiced upon in many parts of this country, Great Britain and Europe. The mystery is not that the fact is so, but that any should at this day remain ignorant of it, and fail to reap its important benefits. Col. John Taylor, the author of *Arator*, in an *Essay on Artificial Grasses*, published in the *American Farmer*, Vol. I., page 257, places this subject in so forcible a point of view that I am sure the Society will thank me for using his language instead of my own. He says:

'In Holland, where the cultivation of grass is generally preferred to that of bread, land sells higher as land, without having its price enhanced by adventitious circumstances, than in any other country. The industrious and profit-loving Dutch choose rather to import than to raise their own bread-stuffs at the expense of diminishing the culture of the artificial grasses. They are as little likely as any people in the world to make an election by which they would lose money. In England, the cultivation of grass is so much more profitable than that of bread-stuff as to have obtained a preference at the expense of considerable importations of the latter. The bearings of this fact are weighty. Hay and butchers' meat in England are nearly of the same price as in this country—whereas, wheat there is often three times dearer than wheat here, and seldom less than double in price. Yet the English farmers prefer raising artificial grasses to raising wheat. Again, the rent as well as price of land is constantly highest in those countries where the culture of artificial grasses is pushed farthest. In England, the rent of fine artificial meadows sometimes extends to twenty dollars an acre, rarely diminishes to ten, and is never so low as the rent of adjoining arable land, however good. It must be our best lands which would rent at one dollar an acre for a term of twenty-one years; and even at this low rent both the land and the tenant are generally ruined. Now when we see the best grazing lands there renting higher than the best arable lands, and their farms renting ten times higher than ours, does it not plainly follow, that both a great profit and a vast improvement of the soil must arise from the culture of artificial grasses; and that the difference in the rent between their farms and ours is in a great measure produced by the latter circumstance? This conclusion is warranted by the fact that the longer the term of the lease is, the higher is the rent there, and lower here; because the tenant in one case calculates on a mode of tillage which will improve the land, and in the other upon its becoming poorer.'

"We see the same condition of things throughout the United States. Wherever the most attention is paid to the propagation and cultivation of the grass crops, the rents, profits and prices of land are the highest. Indeed it must be so, since the profits of farming consist of the joint products of land and labor, and the greater the proportion of the labor to the total product the higher the rate of profit must be, to make the business profitable. This I am dis-

posed to think is true as a general rule and under all circumstances. I am sure it is the case where *slave labor* is used. Permit me to illustrate my meaning by an example. Suppose a man to invest five thousand dollars in land which can be made to yield three hundred dollars without bestowing any labor on it—say he can rent it for that sum—so long as it continues to yield him that sum it will be a good investment, at all events as good as lending the money at the usual rate of interest. But if, instead of investing all the capital in land, he only lays out four thousand in land and the remaining one thousand in two negro men twenty years of age, for whom he pays five hundred dollars apiece, and sets about to work the land; he must now make more than three hundred dollars, or the investment will not be equal to the usual profits of lending money. In the first place he must make, clear of all the expenses of tillage, (excepting the labor,) enough to pay two hundred and forty dollars, the interest on the capital invested in the land, and sixty dollars to pay the interest on that laid out in the slaves; but besides this, he must feed and clothe the slaves, and also get a farther per centage of profit on the one thousand invested in them, sufficient to yield a sum in the lifetime of the slaves equal to their first value, else he will lose a part of the capital by their death. In other words, he must feed and clothe the slaves, make six per cent. on the money paid for them, and enough besides to supply their places when they die. If, now, we suppose the average life of slaves aged twenty to be fifty-two, he must in thirty-two years make, over and above the support of the slaves and the usual rate of interest on his value, five hundred dollars from the product of his labor—this is about three per cent. per annum for thirty-two years on his supposed value. We may safely put the food, clothing, taxes, medical bills, &c., of a slave at thirty dollars a year, which is six per cent. on his value. Add the three together, the six per cent. interest on the cost, six per cent. for clothing, &c., and three per cent. additional to supply his place when he dies, and we have fifteen per cent. on his value as the amount of profit which slave labor must yield to make it as profitable as land without labor, or money at six per cent. Consequently the farmer who employs in Agriculture a capital of ten thousand dollars, one-half of which is invested in slave labor, must make annually, clear of all expenses of tillage, one thousand and fifty dollars—just ten and a half per cent. on the whole capital, to make it as profitable as money at legal interest; while he who has the same capital, but only one-fifth invested in slave labor, need make but seven hundred and eighty dollars a year, or rather more than seven and a half per cent., to make his capital equally profitable—a difference of about three per cent., owing entirely to the proportion of labor in the two cases. For the same reason lands cultivated in grass, which of all other crops requires the least labor, must yield a larger profit than lands cultivated in grain which require the most labor; and this whether the grass be mown for hay or used for grazing, and altogether independent, too, of the improvement of the land itself, which must be greater in grass crops than when cultivated in grain. Hence the high rents, profits and prices of lands in grazing countries.”

Every sign of Nature, and every consideration of policy, invite the agriculturists, off at any considerable distance from tide-water in Virginia, to turn their attention more and more from tillage crops and staples—such as wheat, corn, rye, and tobacco—to grass, butter, cheese,* wool, hops, sheep, cattle and mules. In proportion to the capacity of their land to produce grain, it is far better adapted to grass than lands of same yield of grain on the tide-waters. Clover, white and red, timothy and orchard grass, seem here to be in their natural element, even to the hill-tops; every mountain side on being cleared seems to afford good sheep pasturage, and wherever the growth of grass is too high and rich for sheep—as was found to be the case in some of the western counties, by a large owner of fine-wooled sheep from Pennsylvania, who lately settled in Bedford—Nature invites to the raising of cattle and mules. The flock-master referred to, from Washington County, found difficulty in selecting a site where the bite was short enough for sheep. True, it may be said that if the West has raised up a competitor in growing grain, so has it in rearing stock, owing to the cheapness of rich land, and the grain to fatten hogs and cattle; but the railroads and canals do not offer to the western grazer the advantages they present to the grain-grower to enable him to beat down rivalry on the Atlantic.

For example, take the case which fell under my notice in May last—General Thomas Shelby of Ky., sent four hundred cattle to the New-York market, which took eighty days to travel there, being eight hundred miles at ten miles a day: and at an expense of \$6,000, or \$15 a head *on the road*. He expected the gross sales to be \$32,000, or \$80 per head. Thus, however striking after all may be the advantages of the more western grazer, still they are not so irresistible to

[* A Parliamentary Return shows that 341,632 cwt. of foreign cheese was imported into the United Kingdom of Great Britain in 1846.

his eastern competitor as would be his rivalry in grain. Another element to be brought into the calculation, as illustrated by Mr. Minor, is the greater amount of labor demanded for tillage crops, and labor is the great desideratum now in the parts of Virginia which have been drained of it to supply Alabama and other Southern States. The dearth of labor in this country is, in fact, enough to prevent us from supplying any English demand for wheat, unless under extraordinary circumstances of a general scarcity on the Continent. Europe—where field-labor is about twelve cents a day—is the true wheat region of the world. Take the extent of that Continent, as estimated by McCulloch, at 3,650,000 square miles; and four-sevenths of this, or 2,000,000 square miles, (about the entire area of the United States, exclusive of Texas and Oregon,) is adapted to wheat.

The better to judge of the accuracy of Mr. Minor's estimate as to the average price there given, as well as for other and general calculations and reference, it may be well to put down here the averages for a series of years at different mills and markets in this country. At Brandywine mills, Delaware, the average of the prices paid from 1815 to 1841, both inclusive, was \$1 34½. In the New-York market, the average price for ten years, from 1836 to 1845, both inclusive, was \$1 25. At Baltimore the average price for thirteen years prior to 1845, was \$1 24. At Philadelphia from 1815 to 1841—a period of twenty-seven years—the annual average was \$6 71 per barrel for flour.

The flour of the Valley of Virginia, when transported on the Macadamized road to Winchester in wagons, costs for transportation about one cent per mile, or fifty cents from Newmarket, 48 miles. It is usually taken as a business in wagons drawn by six heavy horses, 40 barrels being the usual load; but teams have been often known to take 10,000 weight. The usual travel is eighteen miles a day. The cost of transportation from Cumberland to Baltimore, 178 miles by railroad, is the same as 48 miles from Newmarket to Winchester, and the freight on flour from Chicago to New-York, 1450 miles, is but \$1 37 a barrel—or 34 cents a bushel.

From Detroit.....	\$1 17½ or 28 cents per bushel
From Buffalo.....	97½ or 23

Such is the difference between horse-power, even on the best Macadamized roads, and more artificial conveyances and water transportation.

Let not the Virginia farmer—on exhausted land and far from market and the facilities of river navigation—be deluded by the hope of extraordinary prices, such as we have had, under an extraordinary combination of circumstances. We have seen that Mr. Minor's estimate is the only safe one. The official average in Great Britain, for seven years ending 1844, per imperial bushel of 60 pounds, was only \$1 68. The average at our Atlantic ports has been \$1 25. It is known that ordinarily the price of freight, and all charges from New-York to Liverpool, is at least 33 cents; lately it has been 50 cents, but putting it at 33 makes the price of American wheat in Liverpool \$1 58; leaving to the shipper only 10 cents for his trouble and risk, supposing the Corn-Laws never to be renewed. They only, then, it is clear, can safely go on making and depending upon wheat and corn, who have the resolution and perseverance to follow out the system indicated so clearly by the author of this Address.

In opposition and contrast with the general management here spoken of, I am glad to record a remarkable evidence of a different spirit existing in South Carolina, as evinced by the example of the gentleman whom I persuaded to give me the following written transcript of what I had previously learned from him in conversation at the White Sulphur Springs, where may be met every year a number of southern planters eminently distinguished for their intelligence and their affability when you meet them abroad, as I know them to be for their hospitality, industry and humanity at home. Would that certain farmers of whom I have heard, not many miles from the shores of the Rappahannock opposite Port Royal—farmers who have inexhaustible and as yet unbroken beds of marl on their farms—could see in this paper the proof of the spirit of improvement roused by the explorations of Mr. Ruffin in Carolina. Are not such listless farmers in Carolina afraid of being haunted by the spirit of Arator, indignant at their neglect of his admonitions?

THE USE OF MARL IN SOUTH CAROLINA.

WHITE SULPHUR SPRING, Virginia, Aug. 3, 1847.

Sir: You asked me to put a part of our conversation yesterday, on the subject of Marl, on paper. I commenced marling about the last of February, 1845, on the plan Mr. Ruffin recommended to the people of South Carolina, where he had been engaged by the State in making a Geological Survey of the State. I flush up the field to be marled with a two-horse plow, as deep as I can have it done with that team and plow; then I lay the field off in acre lengths and widths—each acre into twelve squares—into each square I haul a two ox-cart loads of pen litter and scatter it broadcast by hand from fanners or small baskets; then I haul twelve cart-loads, the same as above—a cart-load into each square, and scattered as above—then I cover the land marled with a single horse-plow; and when the season arrives for bedding, I bed-up with a winged plow and dress off the beds with a hoe. The marl-bed from which I haul is on the Pee Dee River, thirty-six miles by land below my plantation, and above tide-water, and with a descending current of two or three miles to the hour. Computing two for one, which is less than is generally estimated, I believe between land and river distance I must have, you see, seventy-two miles to boat the marl up stream. I use what is called a pole-boat, worked by six able-bodied men and a coxswain or helmsman. I give my men 10 days to make the trip, (viz., $1\frac{1}{2}$ days to descend, 1 to load, and 4 to 5 to ascend, $1\frac{1}{2}$ to unload and the balance to rest). I load by laying the boat alongside of the marl-bank (where there is always deep water,) and after throwing off the superincumbent earth into the river, the marl is spaded up and pitched into the boat. The crew can carry between 6 and 700 bushels only—it weighs about 100 lbs. to the bushel. I unload by wheelbarrows working on a platform of plank raised from the deck to the shore.

1845 was a very dry year, and commencing late, I did not marl more than 15 or 20 acres, but in that year the effects of the marl were very visible in color and increased growth. In that year the river soon became too low to boat, and I made little progress in marling. Last year the effects of the marl of the first year were much more striking—this year more than the two preceding; and when I left home, 15th July, the marled land which was in cotton was from two to three feet high, while the adjoining acres, in all respects alike (viz., soil, plowing and manuring,) was not higher on the stiff old lands—not more than 6 or 8 inches. The marled cotton was of a deep and vigorous green, the unmarled pale and sickly. I am so far from my plantation that I have not been able to say what difference there is in the maturity of the plant or increase of products; but I have no doubt the difference must be very considerable.

You asked me if I had ever made a calculation of what the marl cost me. I have not, but from the data given, you will see the cost must be great, in addition to the cost of boating, (and I have to haul it two miles, and some part of the way through a deep swamp,) to the fields I am marling. But notwithstanding all the difficulties of distance, time, and loss of labor, I think I shall be amply rewarded in the end, or some one else who may succeed me as owner. I do not plead guilty to the charge you make justly against the Virginians of abominable laziness and negligence in *saving and making manure*. I do much in that way, but might do much more. I have marled some corn, but cannot say that the effects with me, although visible, were so strongly marked as cotton.

If anything in the above note is worth extracting, and may incite the young to do what an old man has commenced, use it, if not, fling it into the fire.

The marl I use (by Ruffin's Analysis,) is about 75 or 80 per cent. of lime.

J. D. WITHERSPOON.

Writing, as we ramble in these mountains, not according to any fixed plan, I must now turn you back for some farther remarks on the

AGRICULTURE IN THE VALLEY OF SHENANDOAH AGAIN: LIME, PLASTER,
COST OF LABOR, &c.

My last, from White Sulphur, was eked out by a letter from Mr. J. D. WITHERSPOON, of South Carolina, sent, as much as for anything else, to show to certain gentlemen on the Rappahannock and elsewhere, who have untouched marlbeds on their own estates, what a man of energy can do.

On Friday we set out to sojourn for a few days at Walnut Grove, where we are at "this present"—7th August, 1847.

This noble estate was the property of the late Col. BEIRNE, formerly of the Senate of Virginia, and more recently a Member of Congress from this District. Of this celebrated grazing establishment, more will be said after it has "cleared off," so that I can ride over it to survey his meadows, his horses, and his two or three hundred fat cattle, in company with its present hospitable proprietor, O. BEIRNE, Esq., on whom the homestead worthily devolved at the death of his father.

Though now busily engaged, on a very large scale, in the great marts of

New-York and New-Orleans. in (it may be) a more lucrative, though I should think far less captivating pursuit, Mr. O. Beirne was early imbued and has grown up with a thorough practical knowledge of the economy and business of breeding and fattening cattle; and still, as is quite evident, though extensively embarked in the more exciting and gainful business of commerce, clings with the partiality which its own amusing nature and early associations beget, to this most attractive department in all the wide field of Agricultural Industry. It is easy to see that he unites the amateur with the connoisseur, in his judgment and admiration of his yearlings and two-year-olds, his lots of spayed heifers and his fat bullocks. As well in knowledge of this business as in the spirit that prompts him to leave it for more active pursuits, he displays an example, but too rare, of those who are not to be enervated by the certainty of a large inheritance.

This magnificent property, as possessed and improved in its entirety, by its late owner, Col. Beirne, consisted of 5,000 acres, laid off into fields of irregular shape and size, of from 50 to 200 and 300 acres, by exterior and cross-fences, of not much (if any,) short of 100 miles in their entire length. How much of the forecast that distinguishes the good from the bad farmer has been evinced in thus keeping property so extensive, in a state of constant activity, and yet not only maintaining, but increasing its productiveness, and that, too, beyond the reach of the artificial fertilizers which some localities present! This is indeed to "act well your part."

Walnut Grove is situate within a mile of Union, the county town of Monroe, which lies on the road from the White to the Salt Sulphur, and within four miles of the latter, in a limestone and blue-grass district. I observe, in near proximity to the mansion, a superb park of Sugar-Maple, with here and there a Walnut and a Buckeye shading a soft, deep green, grass carpet, all as beautiful and perfect in their way as in that splendid region around Lexington, in Kentucky—justly admitted to be the garden spot of the Union, and once part and parcel of this good Old Dominion.

Thus confined within doors by rain for the moment, I send you for preservation a letter received too late for my last, from a gentleman who enjoys among his neighbors the high distinction of being considered an *exemplary practical farmer*, and yet, in the estimation of wise and considerate Members of Congress, elected by farmers, and therefore, as we have a right to infer, considered by farmers themselves as not worthy to be mentioned or thought of the same day with any man who can prove that, with his own good Andrew ferrara, he has, in some field of blood, caused some half-dozen fellow-creatures, formed, as we are told, in the very image of their Maker, to "bite the dust!" Such is the boasted wisdom and humanity of Man,—the "Lord of the Creation,"—such his boasted *progress* toward infinite perfectibility and goodness!

To Mr. —:

NEWMARKET, Shenandoah County, July 23, 1847.

Dear Sir: Your letter of 7th inst., directed to Samuel Moffett, Esq., and myself, was handed to me by Mr. M. with a request that I should try to answer your several inquiries. You ask the favor of myself to state on my own observation and knowledge, and that of my judicious neighbors—1st. At what price, generally, could unslaked lime be burned or bought in this neighborhood?

Answer. Lime cannot be burned so cheap here as in many other parts of this country—first, because wood is too valuable; secondly, because no one makes a business of burning lime in this vicinity, therefore the business is but imperfectly understood. I have had four kilns burned—principally to spread on my lands—by as many different persons, (two of the kilns large,) but have been fortunate enough to get but little more than one-half the stone made into lime. Some of those persons boasted much of their knowledge in the business. I cannot speak positively what my lime cost, but suppose it did not cost me less than 10 to 12½ cents, calculating the quarrying, the wood, hauling, board, and charge for setting up and burning. I have several times bought of my neighbors from 2 to 400 bushels at a time, delivered in one or other of my fields, for which I paid, in the unslaked state, 16½ cents per bushel [equal, we suppose, to 8 cents slaked].

2d Question. Is it used in—(could not read your words)*—and if not, why?

3d Question. Has it been tried, and with what effect?

Answer. Lime has not been used much in this vicinity. Some few of my neighbors have tried in a small way, but unfortunately they used what we call the gray limestone, without

* The illegibility here mentioned has caused many errors to appear in these communications from our correspondent, which the reader will please rectify as he goes along.

deriving much benefit from its use. Professor Rogers says the lime used for agricultural purposes should be what we call here the blue limestone, and adds that it should be the blue-black limestone. My last kiln used on land was all of this kind of stone, except the arches, which were of the gray limestone. This kiln was of more service to my land than all the lime I ever purchased and all I ever had burned. I will now tell you, as nearly as I can, how I proceeded to use this lime. First, I had a large field nicely plowed which had been much exhausted by bad management—much of it quite bare, and the soil washed away. On the third day after the last wood was put in the kiln, it was cool enough to handle. I commenced loading and hauling the lime, first going over the field and putting down small pieces of shingles where I wished half a bushel put in a pile. I laid off 35 acres of this field, part to contain 30, 40, 50, and part 60 bushels unslaked lime. Fortunately for me, Providence sent a fine shower of rain soon after we finished hauling out the lime. This put the lime into flour. For fear another shower would put it into dough, I put all hands to spreading; then put four of my harrows on it, and I think we harrowed it three times to incorporate the land with the lime; I then sowed it to wheat, putting it in in the usual way. Having stirred it so much, the land and lime were well mixed, and produced me a very fine, clear crop of wheat, with a strong growth of clover. I have since had this field in corn—a fine crop—following it with wheat, which turned out uncommonly well. It is now well set in clover. This is the only field that I can boast of as being much benefited by lime, and this I attribute mostly to using the right kind of limestone. I have several times used lime in compost-heaps with a good effect.

4th Question. Is plaster of Paris or gypsum much used: in what way; in what quantity; with what effect—and what are the objections, if any, to the use of it? What is the cost of it here per bushel?

Answer. Plaster of Paris is much used here, mostly sown on clover, at the rate of 2 to 5 pecks on the acre, and is frequently mixed with an equal quantity of ashes (leached); plaster is also used to roll wheat and Indian corn in; it is sometimes sown on the growing wheat—but this should be done not later than 15th March, for fear it will ripen early. You will seldom hear any one complain of the use of plaster but those who overstock themselves and leave no grass on the land. I have used plaster for about thirty years pretty freely, and have not as yet felt any loss, but certainly a gain, from its use. It must be used judiciously. I have this spring and summer used 9 to 10 tons, and some of my neighbors have used it as freely as myself, and heretofore with profit. Plaster costs us here about 40 to 42 cents per bushel.

5th Question. Have your lands generally diminished or increased in produce the last twenty years?

Answer. Our lands in this vicinity have generally increased, and my own opinion is that there is a spirit of improvement pervading among the farmers for several miles around us.

6th Question. Might not oxen be more extensively substituted for horses to advantage for field labor—I mean for the plow?

Answer. Oxen have been of but little use for plowing; those who have them use them mostly in hauling out feed for cattle during the winter and spring months. The use of oxen is not so well understood as it is in the North. If we could obtain those having a quick step they would be more used.

7th Question. Does or does not the Valley suffer more than formerly—say 40 or 50 years ago—by drouth? What say the old people? Was it not formerly better watered than now?

Answer. Having resided in the Valley from 1790 to the present time, I can perhaps say as much as most persons on this subject. Judging from many springs that were, fifty odd years ago, considered good springs, affording plenty of water, which are now dry, I must conclude there is not as much water as formerly. [The same answer holds good in the limestone part of Monroe County.]

8th Question. The usual wages given for white labor by the month? Are they conveniently to be had of a good description?

Answer. White laborers generally obtain from \$7 to \$10 per month, and good ones can be obtained.

9th Question. Where Negroes are allowed in meat, instead of having it cooked for them, what is the average allowance in the Valley Counties for each working hand?

Answer. In this vicinity I know no one who does not have the victuals cooked for his slaves. Generally as much is set down to them as they wish to eat; and most of them work easy and are well clothed, and on holidays frequently dress finer than their masters and mistresses. [This is the universal testimony.]

Having answered your several questions to the best of my ability, I hope, if you incline to publish any part of this letter, you will be so good as to improve my language; you will readily perceive I am no grammarian.

[Grammarian or not, I have made no alterations. As to the language, it is just the right sort—plain and clear, without flourish or pretension.]

I took the old American Farmer for many years, and think I derived much information from it. I have the different volumes tied together, with a view of having them bound. I have taken the Albany Cultivator for several years, and am much pleased with it. I hope

you will derive much benefit from the use of the White Sulphur Springs. In hopes this may find you in improving health,

I am, very respectfully, your obed't serv't, JOHN STRAYER.

The preceding letter suggests to me that I ought not to omit this occasion to recommend to every parent and farmer in the United States who has a son destined to be a farmer,—I won't say to follow in his own footsteps—for Agriculture, like other arts and manufactures, ought to be progressively improving,—to place in his hands that greatest of all agricultural works, "THAER'S PRINCIPLES OF AGRICULTURE." So highly do I think of it, that had I a son so situated, to whom I could give only that volume or \$100, I would not hesitate a moment in giving him the former;—the whole of which is embraced in your first volume. I may overrate it, but such is my impression of its extraordinary value to all who have made up their minds to follow Agriculture as a business connected with various elegant studies, and depending for its highest success on principles which demand for their investigation a high order of intellectual attainment and power. In connection with Mr. Strayer's letter as respects the use of Lime, I may refer your readers, without straying from the subject, to the whole section of Von Thaër, Part I., consisting of fifty-six pages on "MANURING THE SOIL." It cannot be too often or too carefully studied. There is always danger of impairing the force of an Essay, and even of subjecting the author to be misapprehended by quoting detached portions of it, yet at the risk of that, as Von Thaër is one of my companions, I must beg room to quote here what he says, not only on other points of "pith and moment," but especially on

THE IMPORTANCE OF A THOROUGH INCORPORATION OF THE LIME WITH THE SOIL.

"It is indispensable that the lime should be intimately and completely blended and incorporated with the soil, so that every particle of the former substance shall come in contact with some particle of the latter and act upon it. Unless this circumstance is carefully attended to, the ameliorating effects of the lime will be very trifling; the greatest possible care and circumspection should therefore be bestowed on this point. Even when lime has been spread over a soil that has already been fallowed and harrowed, the land must be harrowed once more during dry weather, and then plowed with as shallow a furrow as possible, in order to bury the lime. The best way is to make use of the extirpator, which effectually combines the lime with the soil. The land must receive at least four separate operations of tillage, including those appertaining to the sowings, with the plow and the harrow, or with the extirpator; and all must be performed during dry weather. It is, therefore, indispensably necessary that a dead fallow should be given to land which is ameliorated with lime. It is chiefly from this circumstance that lime produces the effect attributed to it, namely, the destruction of those weeds with which the soil is infested. But if we bestow an amelioration of this nature, without at the same time bestowing all those operations of tillage which this amelioration requires, we have no right to expect the advantages which we might otherwise derive. If too small a quantity of lime is employed, it is not productive of any effect; while on the other hand, if it is applied too profusely, it is injurious, because it then becomes transformed into heaps of mortar and gathers into lumps. When buried by one deep plowing, it forms a calcareous crust beneath the layer of mould turned over by the action of the plow, which crust so much impedes the progress of that instrument that the layer of vegetable mould becomes sensibly decreased. This is frequently found to be the case in countries where lime is very cheap, and where it is used too profusely.

There are various opinions with regard to the quantity of lime which ought to be applied to different soils in order to effect their amelioration. The smallest proportion which has ever been used is sixteen bushels per acre; but I have seen and heard of this quantity being increased to one hundred and fifty bushels, especially on newly-tilled soils. English agriculturists, I believe, apply even more than that quantity. The quantity used ought to depend upon the quality of the lime—that is to say, upon its purity, or upon the quantity of sand or clay that is mixed with it. If the calculation is made according to size or measure, that will be influenced by its compactness at the time of being measured. Besides, the nature of the soil ought also to influence the proportion, since an argillaceous soil which contains a great quantity of undecomposed vegetable matter, or which is of a marshy nature, although actually dry, can bear a considerable application of lime, and will profit by it; whereas a sandy, loamy soil would be injured by so large a quantity. Lime is not productive of any effect on damp, wet land. Lastly, we must carefully distinguish between the application of lime which takes place once only, and that which is alternated regularly with stable manure. The former is only used to effect that permanent and durable amendment of the soil which may be expected from lime, if applied in the manner and under the conditions which we have prescribed; the latter, on the contrary, is intended to maintain it in fertility.

The quantity of lime used to attain the first of these two objects ought to be very considerable, while that which suffices for the latter purpose must be small, and always proportion-

ate to the quantity of manure which is applied to the land; for, in the latter case, it is customary to alternate every three or six years between the use of stable manure and that of lime. There are, however, some countries where lime is applied regularly every third year—that is to say, at every fallow it is applied three or four times in succession before it is again supplied with stable manure. But this course of proceeding exhausts and impoverishes the land to the greatest possible degree.

The most various and contradictory opinions have been put forth with respect to the advantages or disadvantages attendant on the use of lime as a manure, and we can only find our way out of this labyrinth of conflicting statements by means of a theory based upon solid foundations; with the assistance of such a theory, all that at first sight appears problematical, with regard to the subject, will be speedily elucidated. Lime, especially when it has recently been calcined, or is, in other words, what we call quicklime, absorbs the carbonic acid which is contained in the atmosphere which surrounds it, and subsequently communicating it to the plants, doubtless furnishes them with some nourishment; but this nutrition is very inconsiderable: the property to which it owes the chief power in promoting vegetation is the faculty of decomposing the humus and inert vegetable or animal substances which it meets with in the soil, and transforming them into nutritive juices adapted to the nature of plants. Hence arise the wonderful effects which it produces when it encounters a great quantity of these substances. Besides, when properly employed it contributes greatly toward the destruction of weeds. Hence, we see as rich crops derived from a first, and sometimes from a second, application of lime, as would have been produced had the land been abundantly manured with stable dung. Many persons who have not rightly comprehended the cause of the effects produced by lime, prefer it to manure, and have believed in the possibility of doing entirely without the latter; but the total exhaustion of the soil which such a course of proceeding must sooner or later produce, caused them to fly to the opposite extreme, and to regard the use of lime as an application in the highest possible degree prejudicial and dangerous. An enlightened and scientific agriculturist will soon perceive that the use of lime can never supersede that of dung, but that it renders this kind of manure more energetic in its action. Thus, he will profit by the increased fertility which lime bestows on the first crop which succeeds the application of it, and will procure as much as possible of those substances which are adapted for the production of dung, in order to restore to the land, in the shape of stable manure, that substance of which it has been deprived by the lime forcing and increasing the vegetation of the crops to which it was applied. He will likewise know when lime will be beneficial and when injurious; and, if he acts with moderation, will be able to employ lime with much advantage in cases where many persons would be afraid to use it."

The reason of my inquiry about the effects of plaster of Paris, was because I had been told by the intelligent proprietor of the hotel at Newmarket, (who, or I am much mistaken, has himself inhaled the anti-pulmonary odor of fresh-plowed ground, and the sweet breath of cattle fresh from the clover-fields,) that an impression existed with old farmers thereabout, that frequent crops of clover had a tendency to produce too much *stiffness in the soil*—but I feel satisfied that they mistake in this case, as in many others, the cause for the effect. The stiffness they deprecate is more probably produced by their close and severe grazing, year after year, without leaving their entire crops ungrazed occasionally, to be turned in. And it may be mentioned that a much more certain injury resulting from the use of plaster, and from its strong and immediate action favorable to the growth of clover is, that it makes the indolent farmer become insensible and indifferent about the increase of his *barn-yard manure*, a great and an honest resource of his own providing—one that a diligent and courageous agriculturist will pride himself upon and always husband with the greatest care. See what Von Thaër says of its importance in combination with lime. The use of that, too, it may be apprehended, has the same effect of begetting a dangerous carelessness about the accumulation of animal manures, without which, as it has been stated, in occasional alternation with lime, the latter will be sure to leave the soil at last exhausted of all the elements of fertility.

Before closing these hasty commentaries on Mr. Strayer's letter, one remark farther may be made upon it: you perceive, Sir, that he took and *carefully read* (there is something in that) your old AMERICAN FARMER—the file-leader of agricultural papers in this country—and that since you gave it up he has for years taken the "Albany Cultivator." Now, Sir, with all the senseless cant so easily uttered against 'book-farming,' (as if a lawyer or a doctor should cease to be trustworthy for being well read in their professions,) this constant reader, as well as others in that neighborhood, of all that is going on in their own pursuits, happen to be, by common consent, the very best practical farmers in their

settlement, and are so proclaimed to all inquiring strangers—and is there no true and solid honor in that? Would you not covet for your son's brow such a chaplet as that, in preference to one stained with human blood, or to a fool's cap! Put this question, Sir, plainly and plumply to the public, and inquire whether any man of real discernment, having an honest and well-founded regard for his sons, ought not to be ashamed to look them in the face if he withholds from them the means of becoming instructed in the principles and the literature that belong to their profession in life, and are necessary to invest it with all that is in it either interesting or ornamental in the view of men of cultivated minds. As for your old American Farmer, Mr. Editor, it contains, undeniably, a vast mass of facts and results of experiments. It skimmed the cream from scattered vessels of long standing—cream that but for the receptacle thus provided would have been lost, much of it, to the world—to that we may at any time turn for mere facts, but, except for new and raw inquirers, these are comparatively not needed. We all know what can be done with abundant means—with plenty of wagons and carts, and men and horses—with good, thorough plowing and harrowing, and laying thick ashes, and stable-manure, and guano, and lime, and plaster, and bone-dust, and pou-drette—for money used with judgment and energy will tell in Agriculture as in Commerce and Manufactures. But now we want to know the *how* and the *wherefore*, so that, of such materials as ordinary farmers may command, no waste may be committed by ignorance of their proper combination and of their adaptation to the crops we have in view, but all be used with that true and exact economy which is only to be obtained by knowledge of the principles involved in every step we take—by a knowledge of what is inhering in the soil, and in what it is deficient in reference to the crops we propose to cultivate; and how much of the several elements of fertility a given amount of each crop will draw out of and convey off from the land. The same as to animals: the food best adapted to the objects we have in view, and how and in what state their various food may be most economically administered. This, Sir, I rejoice, for one, to see, is the high and glorious destiny—the destiny of an intellectual organization and operation for Agriculture—at which you are aiming. Its friends implore for you the all-powerful coöperation of the general press. With its aid, such impetus and direction may be given to public sentiment as that we may hope yet to see the time when all these things shall be taught in our schools, with the same conviction of their utility, and the same practical results, that the Government, representing and supported by the landed interest, now takes care to have taught and diffused the principles involved in the science of war, and even the knowledge of the foreign language in which those principles are best expressed. Ah, Sir, can the landed interest which you advocate, and for which you have been laboring for thirty years, but be brought to *think*!—The Press only can stimulate them to that; that can beget with farmers the will to extort justice for themselves—and when there is a will there will soon be found a way!

GRAZING, AS CONDUCTED AT WALNUT GROVE, MONROE COUNTY, VA.

Since closing my last dispatch I have had the pleasure to ride, again and again, on a fine, high-bred four-year-old, as playful as a kitten, over this extensive domain. As we passed from field to field of new-mown hay or verdant pasture, among herds of assorted cattle of all ages, some browsing in the open fields, others chewing the cud in the grateful shade of trees that shoot up 40 or 50 feet without a limb, I could not but imagine how the "Farmer of Kinderhook," worthily distinguished for his success in some useful and popular departments of Horticulture, must have been impressed with the great extent and unsubdued fertility of a single estate bought and thus improved by the rare industry and enterprise of an individual coming from abroad, and wending his way from the tide-waters of the Old Dominion, to carve out for himself an immense fortune here in her western wilderness! What an example of energy and thriftiness was that of Col. BEIRNE for her thousand sons that are whiling away their lives in listlessness and despair! as if our unbounded and yet infant country did not present a thousand avenues of independence to the resolute and industrious! Alas! the misfortune is, that those who have been reared in the remembrance and use of the old silver tankard, can't bring themselves to drink out of a gourd; but the sooner they learn to grapple with their difficulties, the sooner will they be able

to redeem or renew the old family plate. On the industrious man Despair may look in, but he dare not enter, as Poor Richard says. But, Sir, lest you should suppose that high-bred colt is off with me, sure enough, let us return to our subject.

What, in this estate, must forcibly strike a Lowlander on riding over it, is that you *nowhere see a field of level land!*—no plains covering the tops of hills—no outspreading intervalles at their feet. All is precipitous or rolling; and yet nowhere a sign of a wash or gully—no broken surface, nor anywhere a drop of stagnant water, not even in the bottom of the “Devil’s punch-bowls” or “sinks,” so numerous as to have given to this region the name of the “Sink Country.” These sinks sometimes comprise acres of ground, descending in regular form, to the depth, it may be, of fifty or a hundred feet to the bottom, which is not larger in proportion than the bottom of a mill-hopper, and yet the water, after the heaviest rain, runs through as through a sieve, never remaining long enough to drown a spear of the grass; on the contrary, the grass which grows there is, if anything, greener and more luxuriant than elsewhere. A view of these numerous sinks or caverns—characteristic of limestone districts in this State—and other features of the country, lead one to imagine that the whole district was in a liquid, boiling condition, and by some great spasm or paralysis of Nature, was suddenly cooled and left *in statu quo*. Nothing but the sight of it can prevent you from deriding my hypothesis as the wayward stretch of a crude imagination. Well! *n’importe*. One thing, however, cannot be denied, in view of these mountain farms, that they indicate by their great healthiness for man and beast, and their apparent uniformity of productiveness, the soundness of the great principles of *thorough draining*, which constitutes the leading feature of the systems now in progress for agricultural improvement in Europe. Here, where not a drop of water lies anywhere on the surface for a moment after it falls, the foot, the sides, and the tops of hills, over hundreds of acres, whether cleared or in wood—all parts seem alike fertile and verdant. At the top no less than the base does the timothy flourish until eaten out by the yet more nutritious and fattening blue-grass, which takes final possession; and such seems to be the nature of all this region—with this distinction, that where the oak is the principal growth, there the land is more gravelly, throws up an undergrowth of wood, and is better adapted to *grain*, while the prevalence of the maple, and buckeye, and walnut, shows more fitness for grass, and, like the blue-grass lands in Kentucky, is clear of undergrowth; so that I would not, with a fair chance for the brush, hesitate to drive even my “Marylander” colt through it at the top of his speed in a fox-chase. In equal luxuriance, ’t is true, you see the timothy covering the much less expanded but equally precipitous hills at Hayfields and other farms on the Gunpowder, in Maryland; but their fertility has been maintained by heavy doses of lime and manure, rendered indispensable by more frequently alternating grain crops, and by *selling the grass off the land*. Here it has been, so far, kept up, and promises to be continued, if not augmented, by the happy effects of a sagacious and self-supporting system of *grazing*, so well conducted that nothing is carried off, but everything *restored to the land*. Pouring in the grain as he takes away the meal, the grazier’s hopper is always full. How different with the grass farmer, who sells his hay in the cities! He should remember that he can’t eat his cake and have it too. Small leaks sink great ships, as Poor Richard says. In fact, the great beauty and conservative operation of the *grazing* over the *tillage* system, which it behooves the farmers all along the line of our travel, to remember, consists in the fact that the former pays on the spot what it borrows from his estate, and that it requires, comparatively, but a small quantity and cost of labor in proportion to the money results.

But I must not detain the reader, by ill-digested remarks of my own, from the following. He will please remember that this exposition of my kind host, Mr. BEIRNE, does not purport to be anything like a regular dissertation on this beautiful branch of agricultural industry, for which I had no right to ask, but is to be considered merely as a transcript of his answers to categorical and desultory questions propounded by me casually in the course of our rides over his farm, which questions, without being here repeated, may be understood from the nature of his answers. A greater measure of personal experience, and some time for deliberation, would have enabled me to frame my inquiries with more pertinence, and

to have thus procured, from the fullness of the respondent's information and his frank and courteous disposition, a much more complete exposition of the whole subject, for the use or amusement of those who may desire, as I did, a more exact notion of the manner in which the grazing business is carried on.

ANSWERS OF O. BEIRNE, ESQ., TO INQUIRIES PROPOUNDED IN BEHALF OF THE
EDITOR OF THE FARMERS' LIBRARY.

I breed but a small proportion of the cattle grazed on my estate—say 30 out of 250. I think a larger profit can be made by buying up and *grazing* the common stock of the country than could be by breeding entire; and a much larger profit might be made, in my opinion, by grazing the improved breeds, if they could be obtained.

I procure my stock cattle from the south-western counties of the State—Tazewell, Russell, Smyth, Scott, &c. &c. They are bred in lots of from 5 to 50, by the small farmers of the country, according to the extent of their farms and means. They are fed in winter on the offal of the farm, hay, straw, fodder, &c.; in summer on mountain range—and are generally fat in the fall when sold to the graziers or speculators.

Stock cattle purchased in the fall for grazing the following summer, are 3, 4 and 5 years old—five-year-olds preferred, fattening more kindly at that age. Very little difficulty is experienced by the breeders in keeping their stock together in the range. The usual mode is to put a bell on one that was ranged the preceding year; they soon become accustomed to, and are not apt to wander beyond its sound; it also enables the owner more readily to find them when salt is required, which he usually gives once a week, taking care always to salt them as near the same place as the nature of the case will admit. The usual quantity of salt allowed to each bullock per week is about half a pint.

The mountains of Western Virginia generally afford good range for cattle during the summer and fall months. The pea-vine is esteemed the best range; there are, however, many weeds and shrubs very near if not quite as good.

I am sorry to say, very little enterprise has as yet been manifested by the people of this country in the improvement of their stock by the introduction of bulls of improved breeds or otherwise. As a stimulant I sell my half-breed Short-Horn calves at three months old, for \$10; and but very few are willing to introduce them even at that price. I also permit my neighbors to bring their best cows to my bull free of charge, and but very few even avail themselves of the opportunity.

I purchase my stock cattle in the months of September and October, and commence feeding on hay, straw and fodder from 15th December to 1st January; although it often occurs, when the fall season is propitious for the grass crop, and not obstructed by snow, the cattle will live throughout the winter, and do much better than upon the most abundant allowance of dry food. I cut up my corn and husk it out in November, feed the stalk, fodder and shuck together, and consider it *the best of all the dry feeds*. Oat-straw is not generally esteemed, in this country, as good food for cattle. I usually cut my timothy immediately after the blossom falls, which I think the proper time.

My father has carried through the winter as many as 650 head of cattle; 525 is the most he ever grazed in one year. I should suppose about 25 per cent. is added to the weight of the stock from the purchase to the sale. They are grazed in lots of from 20 to 50; they fatten better in small than in large lots. The Durham stock, well handled, at four years old are worth double the common stock. Cattle are never stabled in this country in winter; the food is scattered out to them on the ground from a wagon in the woodland pastures. I frequently meal my cattle when first turned to grass, for a month or six weeks, at the rate of a gallon to each bullock per day.

I am not able to say the precise quantum of hay necessary for each bullock during the winter. Hay cannot be sold in this country, in any quantity, at any price, there being no demand or market. The first of May is the usual time of turning the stock to grass, and I generally sell in August to the speculators who drive to the Baltimore market. I sometimes, however, sell to the stall-feeders on the south branch of the Potomac. \$10 per head on the original cost is considered a fair profit; \$12, and even \$15, is sometimes obtained.

I cultivate my lands, on the average, about *once in ten years* in corn or oats. The corn land I lay down in wheat and rye, and if designed for meadow, sow at the same time in timothy; if for pasture, in timothy and clover mixed, sowed in January. The oat land I invariably lay down in wheat, and sow on it, in January or February, timothy and clover mixed, for pasture.

Timothy and clover are the only grass-seeds sown in this country, and they are exterminated by the blue-grass, (generally, in about five years,) which is no doubt the natural grass of the country, and thought to be the best for fallowing. I usually cut my meadow land about five years successively, and graze as many more. I have no regular rotation of crops, but am governed in the cultivation of the different fields by their condition and circumstances; some of them require much more frequent cultivation than others. I am of opinion it would be better never to cultivate our grazing lands after they are well set in blue-grass—the older the sod the better it fattens. Two acres of our best land is sufficient to graze a bullock. I have never tried the orchard or red-top grass.

I employ some 15 hands—9 males and 6 females—with some 5 small boys, on my estate of 2,000 acres, which I deem sufficient. White labor can be procured at \$10 per month. A good hand will cut and maul from the stump 200 rails in a day; 100 is the usual task, which is easily accomplished in good timber by an indifferent hand.

The Negroes of this part of the country are not allowanced, being at all times permitted to eat as much as they desire of good and wholesome food, and are always comfortably clothed.

Western Virginia I think admirably adapted to the growth of sheep. Our common stock, when well taken care of, produce a large fleece, and the mutton is as fat and well-flavored as any in the world. I have no doubt the breeding of improved sheep would be more profitable to the farmers of this country than the grazing of cattle. From 21 to 23 days are usually consumed in driving cattle from this vicinity to the Baltimore market. The average cost or expense per head is from one dollar and fifty cents to two dollars. The average weight of the common stock of this country when in market, (4 years old,) is about 500 pounds net.

The reason of my asking about *salting* was that doubts have been started, founded on partial experiments in England, about the effect of salt; but I cannot doubt that it has its virtue—else even wild cattle would hardly go the distance they do for it. Mr. Erskine, the worthy and very obliging host of the "*Salt Sulphur*," from which I am now scribbling, and who has much experience in grazing, says he knows it to be beneficial—that he has observed that salted cattle will *shed their coats* sooner, invariably, than those which are not salted; and this is everywhere, regarded as a healthful indication. Yet there are hundreds of farmers who never give their cattle, intentionally, a particle of salt. Salt and ashes mixed have been highly recommended as a vermifuge, and otherwise wholesome for horses and cattle. In that view ashes are systematically ordered to their horses, by the old mail contractors in the South. ☞ A spoonfull of alum will immediately cure your horse of an accidental founder, so that you may pursue your journey next morning—so says Doctor P. Thornton.

Would any one believe in the continued *stolidity* which prevents farmers, even yet, from having recourse to *cattle of improved blood*? How differently they order things in England! There, at a late (TWENTY-FIRST) annual *lettings* of South-Down rams, by Mr. Jonas Webb, a great South-Down breeder, 67 rams (the whole number let) were let by the season at upward of \$100 each! while lately at Mr. Gowen's *sale* of choice Short-Horns, the prices averaged not over \$40! Is it any wonder that we witness no general improvement? The reason is that men are *reared* in ignorance of the meliorations that are going on in their profession, and of the principles on which they turn; and *men grown* rarely take to books and the search for knowledge, who have been kept from them when young, any more than they take in mature life to fishing, or shooting, or cock-fighting. But if, as in other cases, boys were taught what appertains to their own particular business, if the boy that is to be a farmer, were also initiated, as he should be, in the principles of vegetable and mechanical and animal economy, he would know already, before he entered upon his art, that breeding from improved animals of true conformation and constitutional temperament, would give him, from the same food and care, the increased profits of which Mr. Beirne speaks from personal observation. But you can't make an *improving* man out of one who does not believe in knowledge, or thinks he knows everything, any more than you can make—to use a vulgar saying—a silk purse out of a sow's ear. I very much doubt, Mr. Editor, whether there are ten men in your own native county, since the death of your father, who read ten pages a year on the very business of their lives, a business essentially intellectual and progressive.

Here you see Mr. Beirne, a gentleman of close observation, great personal experience, and strong powers of discrimination, expressly averring his belief in the superiority, as winter food for cattle, of the *offal of Indian corn* over all the dry fodders, even timothy hay, and yet—so faithfully is the agricultural interest cared for, so careful are they to have rendered a full account of *their* contributions to the national wealth, that *not the slightest mention is made of this, one of their most valuable products, in the Census of our national resources*. But thus must it ever be while farmers are educated in anything and everything but that which qualifies them to comprehend their own interests and the principles of their art; and while scarcely any but lawyers and party demagogues represent and make laws for them.

I trust you and your readers, and especially Mr. B., will excuse these running commentaries on his clear and interesting statement. There is one point of it which suggests one more remark: It is the deliberate declaration of such a man, who has traveled all over the Union, is familiar with its various climates, its course of trade, its agricultural staples, its manufacturing industry—it is his declaration to which I would call attention, to wit: "Western Virginia I think admirably adapted to the growth of sheep. Our common stock, when well taken care of, produce a large fleece, and the mutton is as fat and well flavored as any in the world. I have no doubt the breeding of improved sheep would be more profitable to the farmers of this country [meaning Western Virginia] than the grazing of cattle." What stronger corroboration do I need of the soundness of my suggestions, and of the more elaborate and unanswerable illustrations of Mr. RANDALL, as contained in his admirable Letters, now appearing in your Monthly Journal. Doubtless these arguments apply as well to all the upper portions of the Carolinas and Georgia.

It will be admitted that the Yankees are good at guessing what is best for themselves, and know pretty well how to turn their resources to the best account. You will find in a late number of the "Western New-Yorker," published at Warsaw, the following statement as to the wool business of that county:

"The whole number of yards of woolen goods made at the different factories is set down at 65,518—valued at \$51,358; value of raw material used, \$23,800. There have been, at the lowest estimate, (and it probably exceeds that,) 500,000 pounds of wool sold this season, by the farmers of our county. Admitting the sales to average 28 cents per pound, which will not vary much, if any, from that, the amount of money paid out for wool will be one hundred and forty thousand dollars—a nice little sum to be scattered broadcast over our county."

An equal sum might be derived from wool in almost every county in Virginia and Maryland, without any diminution of income from other sources.

In the Genesee Farmer I find the following. It will be seen that his Merino sheep averaged nearly $4\frac{1}{2}$ pounds; but putting the average at 4 pounds, his 200 sheep yielded for their wool above \$350, saying nothing about their 190 lambs. This \$350 is more than fields of 100 acres of wheat will net on the average through the State. Rating the 190 lambs at \$1 each, the 200 sheep would give \$540. But there are factories in the Northern States ready to buy the wool and many other products of the farm on which the wool is grown:

"When I kept the Saxony, $2\frac{1}{2}$ lbs. per head was all that I could get with good keeping; and in rearing lambs I would lose at least 15 per cent., and nearly the same in wintering old ones; and I think there is not as much difference in their size, nor in the quantity of food they eat, as some have intimated. To be sure the Merinos are larger than the Saxony, but the difference is not great. I think that a fat sheep will not eat as much as a lean one, and certainly my Merinos keep in much better order, on the same fare, than my Saxons did, and I seldom lose one in wintering; and in rearing lambs we seldom lose 5 per cent.; and I find it fully as easy to shear 4 lbs. per head as $2\frac{1}{2}$ from my Saxons—and indeed my ewes this year averaged near $4\frac{1}{2}$ lbs. per head, counting lambs and all. My lightest fleece was 3 lbs. 6 oz., and two with lambs by their sides gave $5\frac{1}{2}$ lbs. each, and one barren ewe gave 7 lbs. 14 oz. My sheep were thoroughly washed. The man who bought my wool was much pleased with it, and gave me the top of the market, $37\frac{1}{2}$ cents per lb., cash, for my entire clip. My flock consists of about 200, about half of which are pure bred Merinos of the Paular kind, which I have bred from about 40 ewes and 2 bucks that I purchased from the most approved flocks in Vermont. The other half of my flock is a high cross of the common Merino on the native and Saxony, which makes their wool about as fine as my full-blood Paulars, but do not give near as heavy fleeces. Now I say let every one make his own calculations, and keep the kind of sheep he pleases.

"Very respectfully yours, REED BURRITT.

"Burrill, Tompkins Co., N. Y., July, 1847."

—One more and a much shorter letter will suffice, Mr. Editor, for the few general remarks and reflections that remain on what was observed in connection with their Agriculture during a most agreeable visit to the Springs in Western Virginia.

LONGEVITY OF THE DONKEY.—A donkey belonging to Mr. Gandey, of Brighton, died lately at the advanced age of a hundred years! It was a great favorite with its master, and was well provided for up to the time of its death.

HOUSE-FEEDING SHEEP.

I HAVE two houses for feeding sheep, the one containing 140 stalls, and the other 150. My system has been now several years in operation, and answers my fullest expectations.

The great principle upon which I relied, when I commenced it, was that safe and certain one, that in proportion as an animal is kept warm, clean, well fed, (in other words, comfortable in every respect,) it will improve in flesh and in fat, and will be likely to repay the attention of the feeder. This principle had been safely applied to other animals—to the ox, the swine, the horse, the dog—to many of the wild animals—and, what furnished a still stronger illustration, to birds—for the careful housewife invariably coops her poultry. The ordinary process of reasoning assured me that the same causes which were operative upon other animals would be as certainly operative upon the sheep, and the result has fully justified the opinion.

My sheep are confined in stalls, the dimensions of which I need not give, because it is obvious that they must be regulated by the ordinary size of the breed to which they are to be appropriated. It is enough to say that they should not be so large as to enable the animal to turn round and dirty the trough. Each sheep is confined by a leathern collar, attached to a slight chain (of the size of a small dog-chain) furnished with a couple of swivels, sufficiently long to secure comfort to the animal, but not long enough to hang back beyond the division of his stall, and to interfere with his neighbor. At the head of each sheep is a trough, for the purpose of holding turnips, at one end of which is a division for chaff, bruised corn, linseed-cake, or other food of the kind. Above the trough is a small rack for vetches, clover, or other long food.

In one of my houses a small cast-iron water-trough is appropriated to every two sheep, the entire number of troughs being laid upon a level, and supplied from a tank furnished with a ball-cock.

Under each row of animals is a receptacle for the manure, formed of brick laid in cement. It is about two feet deep, and as much in breadth, and is covered by an oaken grating. A receptacle of these dimensions requires emptying about once in ten weeks. The sheep stand back to back, with an interval between the rows sufficient to allow the barrows, for feeding and for carrying away the manure, to pass freely through the house, and this passage is laid so far below the level of the gratings as to admit of any dirt dropped in the path being swept into the manure-tanks on either side.

The whole of the openings in the stalls are secured by shutters, which in cold weather are closed entirely at night, and which are opened, more or less, according to the weather, during the day.

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Gypsum is occasionally scattered along the paths, and swept into the tanks; and, in the absence of gypsum, peat or other vegetable ash, which we find answer a good purpose.

So essential do I consider warmth, that if I were in a coal country I should be inclined to regulate the heat of my ox and sheep houses as we do that of our conservatories—by artificial heat; and I think it probable that the feeder would be repaid by glazing the openings left for light.

My sheep are generally very healthy, and thrive fast; but in this respect they differ very much. In some very rare instances individuals have gained a pound a day live weight. In many instances the average gain, upon a large number, has exceeded three pounds a head per week; but the more general average is about two and a half pounds. It is obvious that the breed and quality of the sheep, the age, the sex, the season, the weather, the food, are all involved in this question. And so in reference to the time occupied in making out the sheep for the butcher. Upon this point it is enough for me to say that the advantage of stall-feeding over the open fold is immense; and it will be, of course, greater or less in proportion as the farm is one in which the soil and the exposure are more or less favorable to the well-doing of stock, and to the feeding-off the turnip crop.

The manure is of first-rate quality, and especially valuable for the drill; not inferior, as I think, to the best guano, made as it is under cover, and containing as it does all the chemical properties of the urine, in admixture with the solid manure. My usual custom has hitherto been to use it with the addition of some bone, either in the raw state, or recently in that of superphosphate. I may add that under this system the growth of wool is very rapid, fully corresponding to that of the carcass.

I have thus told you everything which occurs to me as useful to be known by those who may wish to carry into effect my method of feeding.

RICHARD SIMEON.

Swainston, Isle of Wight, Feb. 22.

W. C. SPOONER, Esq.

There are now before the public the details of three methods of shed-feeding sheep—the system of box or pen-feeding adopted by Mr. Huxtable, the method of stall-feeding practiced by Sir Richard Simeon, Bart., and the plan of having movable houses in the turnip-field recommended by other gentlemen. Each system seems to have peculiar advantages as well as disadvantages, but all agree in the economical manufacture and expenditure of the manure.

W. C. SPOONER.

[London Gardeners' Chronicle.

LETTER X.

BREEDS OF SHEEP IN THE UNITED STATES.

Enumeration of Imported Breeds...No indigenous ones...“Native” Sheep—their Origin—Views of Mr. Youatt—Mr. Livingston—their true Origin—their Early Increase in New-England...Vanderdonk’s description of the Sheep and their increase introduced from Holland into New-Netherland (New-York)...Characteristics of the Native Sheep...Account of the Introduction of Merinos into the United States...Their valuation at different periods...The Spanish sub-varieties—Merged in the United States...Purity of blood of the descendants of the Early Importations...Spurious Merinos...Weight of Fleece of the Spanish and French (Rambouillet) families...Description of the latter...American Families—their Characteristics...Doctor Emmons’s Measurements of the Fineness of Wool of individuals of the American, Spanish, and French families—also of other breeds...The Characteristics of the Merino—its Crosses...The Saxon Sheep—its Origin—Varieties—Treatment in Germany...Introduction into the United States...Purity of blood in our present flocks—Weight of Fleece—Characteristics...The New Leicester or “Bakewell”—Origin—Character in England—Introduction into the United States—Valuation in the latter—Characteristics...South-Down Sheep—Origin—Characteristics—Introduction into the United States...Mr. Ellman’s description of a perfect animal...Cotswold Sheep—Original Stock—Crossed—the improved variety—Characteristics of—Introduction into the United States...Cheviot Sheep—Importation into the United States—Original Stock—Crossed—improved variety—Characteristics...Broad-Tailed Sheep—Introduction into our Country—Characteristics.

Dear Sir : It is believed by those competent to judge, and who have investigated the subject, that our country now possesses every known *breed* of sheep which could be of particular benefit to its husbandry. In proceeding to give an account of the sheep of the United States, I do not deem it necessary to take up your time with a detailed *history* of each race. The zoölogist or breeder anxious to obtain this information, will find it given with great elaboration and accuracy, in the admirable work on Sheep by the late Mr. Youatt.*

The principal breeds in the United States are the “Native,” (so called) ; the Spanish and Saxon Merinos, introduced from the countries whose names they bear; the New Leicester or Bakewell, the South-Down, the Cotswold, the Cheviot, and the Lincoln from England. The common sheep of Holland were early imported by the Dutch emigrants who originally colonized New-York, but have long since ceased to exist as a distinct variety. The Broad-Tailed Sheep of Asia and Africa have several times been introduced from Persia, Tunis, Asia Minor, etc.

Chancellor Livingston also speaks of two “races as ‘indigenous’ to this country, which we have not enumerated, as it is not known to the Committee† that they are now bred in any portion of the United States, viz., the Otter and Smith’s Island Sheep, breeds said to have been discovered on two islands on our Atlantic coast. An almost infinite variety of crosses have taken place between the Spanish, English, and ‘native’ families. To so great an extent, indeed, has this been carried, that there are,

* Also in Mr. Bischoff’s, Spooner’s, etc., (English) works, and Mr. Morrel’s “American Shepherd”—the historical parts of all of which are compiled mainly from Mr. Youatt.

† At the Annual Meeting of the New-York State Agricultural Society, 1837, a Committee was appointed to report at the next Annual Meeting of the Society, on the “Condition and Comparative Value of the Several Breeds of Sheep in the United States.” The Committee consisted of Henry S. Randall of Cortland, Henry D. Grove of Rensselaer, John B. Duane of Schenectady, Francis Rotch of Otsego, and C. N. Bement of Albany. These gentlemen were at the time breeders of all or nearly all the most important varieties, and it was expected that each would write that portion of the Report treating of the one or ones bred by himself. The Committee, however, desired—or rather required me to write the whole Report, which I did, with the exception of quotations from authors. The Committee met in Albany, prior to the presentation of the Report, and the late Thomas Dunn and several other breeders were present by invitation. The Report was unanimously adopted by the Committee, and assented to by the breeders present. I do not now quote or adopt all the conclusions of that Report. Experience has compelled me to modify some of my opinions, and actual changes in the breeds have taken place. But I have mentioned the above facts, to show the authority on which the statements which I have quoted, rest; and also because the Report has been often quoted from, sometimes without any credit, and sometimes erroneously credited.

[To save constant reference, it will be understood that all the matter quoted in this Letter from the Report will, unlike the cases where Mr. Randall quotes at any length from the writings of others, be printed in the same type with the body of the Letter, and simply marked with quotation points. *Publisher.*]

comparatively speaking, few flocks in the United States that preserve entire the distinctive characteristics of any one breed, or that can lay claim to unmixed purity of blood."

NATIVE SHEEP.—"Although this name is popularly applied to the common coarse-wooled sheep of the country, which existed here previously to the importation of the improved breeds, there is, properly speaking, no race of sheep 'native' to North America. Mr. Livingston, in speaking of a race as 'indigenous,' only quoted the language of another,* and his informant was either mistaken as to the fact, or misapprehended the term. The only animal of the genus *Ovis Aries*, originally inhabiting this country, is the Argali,† known to our enterprising travelers and traders who have penetrated to the Rocky Mountains, where the animal is found, as the Big Horn.‡ Though the pelage of the Argali approximates but little to the wool of the domestic sheep, they are, as is well known, considered by naturalists to have belonged originally to the same species; and the changes which have taken place in the form, covering, and habits of the latter, are attributed to his domestication, and the care and skill of Man during a long succession of years.

"The common sheep of the United States were of foreign and mostly of English origin. The writer of the volume on Sheep in the 'Farmer's Series,' [Mr. Youatt,] speaks of them as 'although somewhat differing in various districts, consisting chiefly of a coarse kind of Leicester, originally of British breed.'|| Others have seen, or fancied they saw, in some of them, a strong resemblance to the South-Downs. Mr. Livingston was of this number.§ But it is far more probable that they can claim a common descent from no one stock. Our ancestors emigrated from different sections of the British Dominions, and some portion of them from other parts of Europe. They brought their implements of husbandry, and their domestic animals, to fertilize the wilderness. Each, it would be natural to suppose, made choice of the favorite breed of his own immediate district to transport to the New World, and the admixture of these various races formed the mongrel family now under consideration. Amid the perils of war, and the incursion of beasts of prey, they were preserved with sedulous care. As early as 1676, Mr. Edward Randolph, in a 'Narrative to the Lords of the Privy Seal,' speaks of New-England as 'abounding with sheep.'¶

Vanderdonk, writing in 1790, thus speaks of the sheep introduced from Holland into New-Netherland (now New-York) by the Dutch emigrants:—

"Sheep are also kept in the New-Netherlands, but not as many as in New-England, where the weaving business is carried on, and where much more attention is paid to them than by the New-Netherlanders. The sheep, however, thrive well, and become fat enough. I have seen mutton there so exceedingly fat that it was too luscious and offensive. The sheep breed well and are healthy; they find good pasture in summer, and good hay in winter; but the flocks require to be guarded and tended on account of the wolves, for which purpose men cannot be spared. There is also a more important hindrance to the keeping of sheep, which are chiefly cultivated for their wool. New-Netherland is a woody country throughout, being almost everywhere beset with trees, stumps and brushwood, wherein the sheep pasture, and by which they lose most of their wool. This is not apparent until they are sheared, when the fleeces turn out very light."

"The common sheep yielded a wool only suited to the coarsest fabrics, averaging, in the hands of good farmers, from 3 to 3½ lbs of wool to the

* Livingston's Essay on Sheep, pp. 56, 60.

† Godman's American Natural History.

‡ The "wooly sheep" of the Rocky Mountains, the description of which is quoted by Mr. Morrel, (American Shepherd, p. 131,) from Capt. Bonneville, is a goat. It will be found described in Godman's Natural History, vol. ii. p. 326, *et supra*.

|| Vol on Sheep, p. 134.

§ Essay on Sheep, p. 53.

¶ Colonial papers of Massachusetts.

fleece. They were slow in arriving at maturity, compared with the improved English breeds, and yielded when fully grown, from 10. to 14 lbs. of a middling quality of mutton to the quarter. They were usually long-legged, light in the fore-quarter, and narrow on the breast and back, although some rare instances might be found of flocks with the short legs, and some approximation to the general form of the improved breeds. The common sheep were excellent breeders, often rearing, almost entirely destitute of care, and without shelter, one hundred per cent. of lambs, and in small flocks a still larger proportion. These, too, were usually dropped in March or the earlier part of April. Restless in their disposition, their impatience of restraint almost equaled that of the untamed Argali, from which they were descended; and in many sections of our country it was common to see from twenty to fifty of them roving, with little regard to inclosures, over the possessions of their owner and his neighbors, leaving a large portion of their wool adhering to bushes and thorns, and the remainder placed nearly beyond the possibility of carding by the Tory weed (*Cynoglossum officinale*) and Burdock (*Arctium lappa*) so common on new lands.

"The old common stock of sheep, as a distinct family, have nearly disappeared, having been universally crossed, to a greater or less extent, with the foreign breeds of later introduction. The first and second cross with the Merino, resulted in a decided improvement, and produced a variety exceedingly valuable for the farmer who rears wool only for domestic purposes. The fleeces are of uneven fineness, being hairy on the thighs, dew-lap, &c.; but the general quality is much improved; the quantity is considerably augmented; the carcass is more compact and nearer the ground; and they have lost their unquiet and roving propensities. The cross with the Saxon, for reasons which we shall hereafter allude to, has not been generally so successful. With the Leicester and Downs the improvement, so far as form, size, and a propensity to take on fat are concerned, is manifest."



MERINO RAM.

[Defiance, 17 months old, bred by and the property of Henry S. Randall.]

SPANISH MERINO.—"The history of this celebrated race of sheep, so far as it is known, has so often been brought before the public that it is deemed unnecessary here to recapitulate it. The first importation of them into the United States took place in 1801. Four were shipped by Mr. Delessert, a banker of Paris, three of which perished on the passage.* The fourth arrived in safety at Rosendale, a farm owned by that gentleman near Kingston, in this State. The same year Mr. Seth Adams, of Massachusetts, imported a pair from France. In 1802, two pairs were sent from France by Mr. Livingston, the American Minister, to his estate on the Hudson; and later the same year, Mr. Humphrys, our Spanish Minister, shipped two hundred, on his departure from that country, for the United States." Hon. William Jarvis, of Weathersfield, Vermont, then American Consul at Lisbon, sent home large and valuable flocks in 1809, 1810, and 1811. The particularly favorable circumstances for obtaining the choicest sheep of Spain, under which these were procured, you will find detailed in a letter to me from Mr. Jarvis, dated December, 1841, published in the Transactions of the New-York State Agricultural Society of that year. Various subsequent importations took place, which it is not important to particularize.

The Merinos "attracted little notice, until our difficulties with England led to a cessation of commercial intercourse with that power, in 1808 and 1809. The attention of the country being then directed toward manufacturing and wool-growing, the Merino rose into importance. So great, indeed, was the interest excited, that from a thousand to fourteen hundred dollars a head was paid for them." Unfortunately some of the later importations "arrived in the worst condition, bringing with them those scourges of the ovine race, the scab and foot-rot. These evils and the increased supply, soon brought them down to less than a twentieth part of their former price; they could now be bought for \$20 a head. When, however, it was established, by actual experiment, that their wool did not deteriorate, as had been feared by many, in this country, and that they became readily acclimated, they again rose into favor. But the prostration of our manufactures, which soon after ensued, rendered the Merino comparatively of little value, and brought ruin to numbers who had purchased them at their previous high prices. The rise which has since taken place in the value of fine wool, as well as the causes which led to it, are too recent and well understood to require particular notice. With the rise of wool, the valuation of the sheep which bear it, has of course kept pace.

"The Merino has been variously described. This arises from the fact that it is but the general appellation of a breed, comprising several varieties, presenting essential points of difference in size, form, quality and quantity of wool." And writers of high authority differ even in their descriptions of these families or varieties. M. Lasteyrie, so celebrated as a writer on sheep, and particularly on the Merino, and Mr. Jarvis directly contradict each other on several points.† It is scarcely necessary now to quote their conflicting statements, or inquire which is right—as the questions involved possess no practical importance. These families have, generally, been merged, by interbreeding, in the United States and other countries which have received the race from Spain. Purity of *Merino* blood, and actual excellence in the individual and its ancestors, has long since been the only standard which has guided sensible men in selecting sheep of this breed. Families have indeed sprung up, in this country, ex-

* Archives of Useful Knowledge.—Cultivator, vol. i. p. 183.

† See Lasteyrie on Sheep—or, if not accessible—his statements quoted by Mr. Youatt, p. 156. For Mr. Jarvis's statements, see his Letter to L. D. Gregory, quoted in American Shepherd, pp. 73, 74.

hibiting wider points of difference than did those of Spain. In some cases they doubtless owe it to particular courses of breeding—but more often, probably, to concealed or forgotten infusions of other blood.

The point has, indeed, been occasionally mooted, whether there are any Merinos in the United States, descendants of the early importations, of *unquestionable* purity of blood. That there are, has been recently definitely settled by a connected chain of undisputable and undisputed testimony,* not necessary here to be repeated. That, on the other hand, in the recent rush of speculation, a marvelous facility has been evinced, in some instances, in suddenly recollecting lost links in the chain of pedigree—or in forgetting others which it would not be expedient to remember, no one would require any proof who has seen some of the animals which have been hawked through the country as full-bloods.

“Taken collectively, the Spanish rams, according to Chancellor Livingston, yield about eight and a half pounds of wool, and the ewes five, which loses half in washing—making four pounds and a quarter the average weight of fleece of the rams, and two and a half the average of the ewes.† Some varieties considerably exceed this estimate, and probably it would fall short if applied to the prime sheep of any variety.”

The fleeces of the Merinos at Rambouillet in France, it is stated in the Report of M. Gilbert, to the National Institute, quoted by Mr. Livingston,‡ weigh, in the rams, from twelve to thirteen pounds (unwashed) wool—taking rams and ewes together, it has “not quite attained to eight pounds, after deducting the tags and the wool of the belly, which are sold separately.” Mr. Livingston remarks that the French pound is about one-twelfth heavier than the English; but on the other hand, that from the manner of folding and housing sheep and feeding them on fallows in France, they are very dirty, and lose 60 per cent. in washing.”|| This would bring the average of the Rambouillet flock to about four pounds, exclusive of tag and belly wool.

M. Lasteyrie gives the following annual averages per head of the Rambouillet flock: 1796, 6 lbs. 9 oz.; 1797, 8 lbs.; 1798, 7 lbs.; 1799, 8 lbs.; 1800, 8 lbs.; 1801, 9 lbs. 1 oz.—This is *unwashed* wool, and will lose half in washing. Mr. Livingston's imported ewes averaged 5 lbs. 2 oz.; his rams 6 lbs. 7 oz., of unwashed wool.§ The later importations will, judging from the specimens I have seen, average much higher than the latter. They are a large sheep, with good, but not the best, quality of Merino wool—some of the larger stocks being rather coarse—and not very uniform, one with another, either in their appearance or fleeces—and are most remarkable for the loose pendulous skin which hangs about their necks, and lies in folds about their bodies. They are free from hair—their wool, which is of good style, opens with a creamy color, and rich lustre, on a fine rose-colored skin. Their wool is long on the back, shortish on the belly—thick, but not so thick as that of many of the American Merinos—very yolky, but destitute of concrete external gum.

The American Merino has, as already intimated, diverged into families or varieties presenting wide points of difference. The minor distinctions are numerous, but they may all, perhaps, be classed under three general heads. The *first*, is a large, short-legged, strong, exceedingly hardy sheep, carrying a heavy fleece, ranging from medium to fine—free from hair in properly bred flocks—somewhat inclined to *throatiness*, but not so much so as the Rambouillots—bred to exhibit external concrete gum in some

* This testimony will be found in a Letter from me to A. B. Allen, Esq., in the December No. of the *American Agriculturist*, 1844, and in the *Cultivator*, I think, of the same date—if not, the succeeding No.

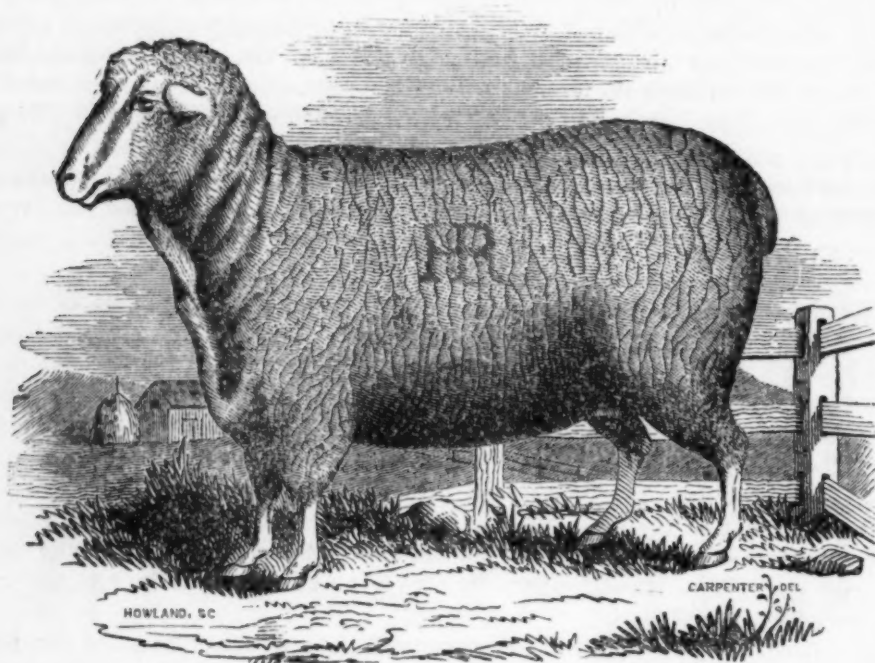
† Livingston's Essay on Sheep, p. 39.

‡ *Ibid.*, p. 49, *et supra*.

|| Livingston's Essay on Sheep, p. 51.

§ *Ibid.*, Appendix.

flocks, but not commonly so—their wool longish on both back and belly, and exceedingly dense—wool whiter within than the Rambouillets—skin the same rich rose-color. The ram on page 169 is a good specimen of this variety, though his age is not sufficient to give him the substance and compactness of an older animal, and the apparent want in these particulars is heightened by recent shearing.* His first fleece of well-washed wool, at thirteen months old, was 8 lbs.; was of beautiful quality, and entirely destitute of hair. At three years old he would have sheared from 10 to 12 lbs. of well-washed wool.†



MERINO EWE.

The *second* general class of American Merinos are smaller than the preceding—less hardy—wool as a general thing finer—covered with a black pitchy gum on its extremities—fleece about one-fourth lighter than in class first.

The *third* class, which have been bred mostly South, are still smaller and less hardy—and carry still finer and lighter fleeces. The fleece is destitute of external gum. The sheep and wool bear a close resemblance to the Saxon; and if not actually mixed with that blood,‡ they have been formed into a similar variety, by a similar course of breeding.

Class *first* are a larger and stronger sheep than those originally imported from Spain, carry much heavier fleeces, and in well selected flocks, or individuals, the fleece is of a decidedly better quality. The ewe from my flock—the portrait of which is given above—sheared 7 lbs. 10 oz. of well-washed wool.|| The fibre numbered 1. in fig. 1, in the succeeding measurements by Dr. Emmons, is from this fleece. The fleece is exceedingly even and entirely destitute of hair.

For the purpose of exhibiting the comparative quality of the wool of

* The portrait, on the whole, is strikingly accurate, but the skill of the artist does not compensate for his want of experience, in animal painting, in giving the anatomical details and expression of the countenance. The same remark applies to the portrait of the ewe.

† This valuable animal died since the above portrait was painted, and prior to his second shearing.

‡ I am not aware what pedigree is claimed for them. They are usually spoken of as Merinos.

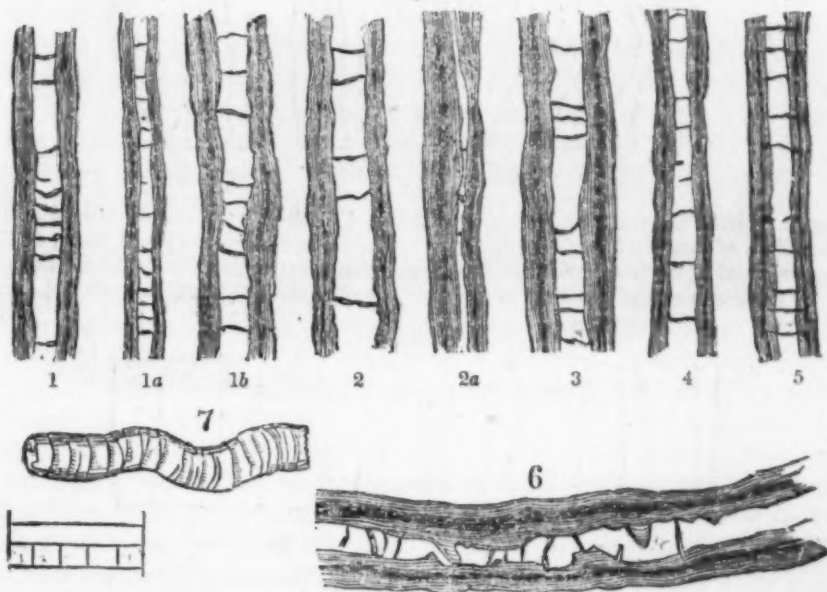
|| I. e.—washed as clean as practicable in a brook, under a heavy sheet of falling water.

the American, Rambouillet, and early imported Spanish Merinos, I copy the following, from the pen of Ebenezer Emmons, M. D., State Geologist, in the American Quarterly Journal of Agriculture and Science, of which publication Dr. E. is the Editor.

"Having given you a pretty full report of the farm and stock of Mr. Randall, embracing many details also in the several branches of husbandry, I now propose adding a few words as an appendix to that report. I gave some intimation, when speaking of the fineness of the wool of Mr. R.'s sheep, that on my return home I would furnish something more exact as a test for fineness than the naked eye. In fulfillment of this intimation, I have been engaged since I returned, in measuring the diameter of the different staples which I procured while at Cortlandville, and which I have compared with others obtained of our mutual friend, Luther Tucker, Esq., of the Cultivator.

"The different kinds are indicated by numbers. I have prepared a scale which is equal to 100 millimeters; a millimeter is equal to 0.039 of an inch. The hundredth of a millimeter,* and the fibres of wool, are all subjected to the same magnifying power of an excellent Chevalier's compound microscope. The comparison is both absolute and relative; but it is highly interesting to see the perceptible difference between the different fibres of wool. The microscope also reveals other differences; some of the fibres appeared rather uneven or flattened, and destitute of a clear and distinct pith or tube; and, in fact, I may remark that the microscope is really the best method of testing the real quality of wool." . . .

Fig. 1.



"No. 1, Mr. Randall's; No. 1a, fibre of Mr. Randall's prize Merino buck; † No. 1b, fibre from one of Mr. Randall's fleeces; No. 2 and 2a, fibres from Mr. Seth Adams's wool; No. 4, Remilles wool, Shoreham, Vt.; No. 5, fibre of S. O. Burchard's fine wool, Shoreham; No. 3, fibre of Charles L. Smith's wool, Shoreham; No. 6, fibre from Collins's Grandee. The last five were taken from wool left at the Cultivator office. In all the fibres examined there is a great uniformity in the parcels; only slight differences, in fact, could be detected in the several diameters. No. 7 shows the structure of wool as seen under the microscope. In the corner is the scale of measurement. The finest fibre as magnified in this cut is equal to about eighteen-hundredths of an inch in diameter.

"Another inquiry equally important with the preceding came up in this place: What is the strength of a single fibre of wool, and is the coarser comparatively stronger than the fine? I set about answering those inquiries at once, and now give you the result below:

"Mr. Randall's No. 1b, on three trials, supported on an average 62 grains; or, rather, broke when tried with the weight of 62 grains.

"Mr. R.'s No. 1a broke with 57.1 grains.

"The fibre from Collins's Grandee, on three trials, supported on an average 84.6 grains.

"Mr. Smith's specimen of Shoreham, Vt., on three trials, gave an average of 65.6 grains."

No. 1a is the wool of my ram "Premium," which received the first prize

* About 1-2500 of an inch.
(365)

† Taken from the animal by Doct. Emmons.

at the State Fair at Poughkeepsie, 1844,* and his fleece weighed 10 lbs. of well washed wool.

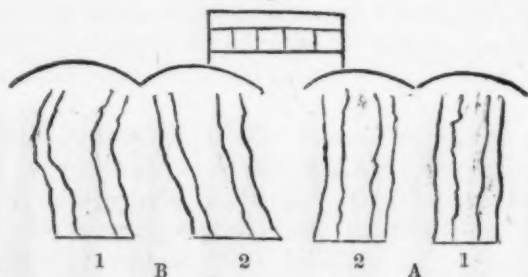
No. 2 and 2a, (Mr. Seth Adams's wool,) were from the sheep imported by that gentleman.

No. 6 was from Grandee, the best ram of Mr. Collins's Rambouillet importation.

It will be observed, first, that the American wool is the finest, and second, its strength is greatest in proportion to its diameter.

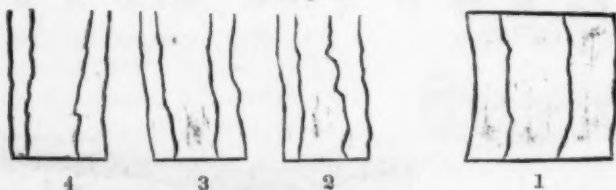
It will probably be as well to bring Doct. Emmons's subsequent measurements of the wool of other individuals and varieties together at this place, as to scatter them through the descriptions of the several breeds. It will render a comparison between them more convenient. I would remark that the cuts are copied from those of Doct. Emmons, with the strictest fidelity.† Indeed they are perfect *fac similes*.

Fig 2.



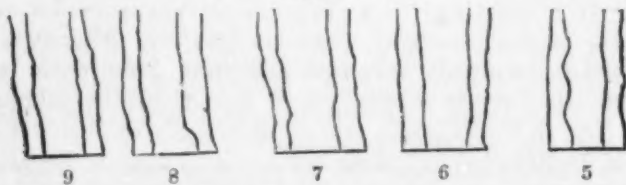
"Figure 2 (scale of measurement same as in Fig. 1) exhibits the comparative diameters of the wool fibre of two premium Saxon sheep exhibited at the State Fair at Utica, 1845. A 1 is a fibre of wool from the shoulder of the 2d premium sheep (Mr. Church's); 2 do. from the flank. B 1, fibre from the shoulder of the first premium sheep (Mr. Crocker's); 2 do. flank.

Fig. 3.



"Fig. 3, No. 1. fibre of Bakewell—about the average fineness of this kind of wool. No. 2, fibre from Merino ewe belonging to Col. Sherwood, 3 years old (Blakesley sheep.) No. 3 do. Mr. Bailey's ewe. No. 4 do. Mr. Atwood's.

Fig. 4.



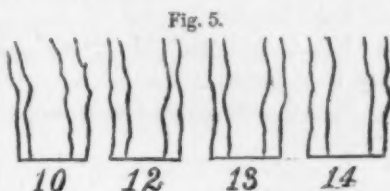
"Fig. 4.—No. 5, fibre of Mr. Ellis's ewe, fleece weighing 6 lbs. 13 oz. No. 6 do. Mr. Nettleton's yearling Merino buck. No. 7 do. a sample from the imported 5 per cent. South American wool, which is seen to be nearly as fine as the best of our flocks. No. 8 do. Col.

* This is the only time my sheep have ever been shown at a State Fair, and I first made arrangements for exhibiting, in the expectation of having the privilege of comparing my sheep with the imported Rambouillets of Mr. Collins. Mr. C., however, declined my invitation to show. I received the first prize on rams, and the first and second on ewes.

† Executed by William Howland, of New-York, whom I take pleasure in recommending to all wishing to obtain wood engravings, as an accurate and most obliging artist.

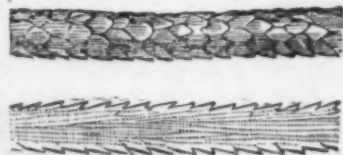
Sherwood's three-year-old buck, sheared $3\frac{1}{2}$ lbs. of wool. No. 9 do. finest Saxon wool in market.

Fig. 5.—No. 10, fine Ohio wool. No. 12, do. Saxon of the late Mr. Grove's excellent flock. No. 13, do. original imported Spanish wool by Seth Adams. No. 14, Mr. L. A. Morrell's Saxon.



The following cut, copied from Youatt, exhibits a fibre of Merino wool viewed both as an opaque and transparent object, with a microscope manufactured by Mr. Powell, of London.

The serrations or "beards," which constitute the felting property of wool, are beautifully distinct and sharp. It was a picklock from a Negretti fleece, and Mr. Youatt says it is "very fine, being only the $\frac{1}{750}$ th part of an inch in diameter." By consulting Doct. Emmons's preceding statements, it will be seen that the wool of my prize ram "Premium" is only about $\frac{1}{1800}$ th of an inch in diameter! This forcibly shows the improvement which has been made on the Merino wool of Spain in the United States.



"The Merino, though the native of a warm climate, becomes readily inured to the greatest extremes of cold, flourishing as far north as Sweden, without degenerating in fleece or form. It is a patient, docile animal, bearing much confinement without injury to health, and possesses none of that peculiar 'voraciousness of appetite,' ascribed to it by English writers.*—Accurately conducted experiments have shown that it consumes" a little over "two pounds of hay per diem, in winter; the Leicester consumes from three and a half to four; and the common wooled American sheep would not probably fall short of three. The mutton of the Merino, in spite of the prejudice which exists on the subject, is short grained and of good flavor, when killed at a proper age," and weighs from ten to fourteen pounds to the quarter. "It is remarkable for its longevity, retaining its teeth and continuing to breed two or three years longer than the common sheep," and at least half a dozen years longer than the improved English Breeds; "but it should be remarked in connection with this fact, that it is correspondingly slow in arriving at maturity. It does not attain its full growth before three years old, and the ewes in the best managed flocks, are rarely permitted to breed before they reach that age."

The Merino is a far better breeder than any other fine-wooled sheep, and my experience goes to show that its lambs, when newly dropped, are hardier than the Bakewell, and equally so with the high bred South-Down. The ewe is not so good a nurse, however, as the latter, and will not usually do full justice to more than one lamb. Eighty or ninety per cent. is about the ordinary number of lambs usually reared, though it often reaches one hundred per cent. in carefully managed or small flocks.

"We have already adverted to the cross between the Merino and the native sheep. On the introduction of the Saxon family of the Merinos, they were universally engrafted on the parent stock, and the cross was continued until the Spanish blood was nearly bred out." When the admixture took place with judiciously selected Saxons, it resulted not unfavorably for certain purposes. But unfortunately these instances of judicious crossing were rare. Our country was flooded by eager speculators, with the feeblest and least hardy Merinos of Germany. Fineness of wool during

* Youatt, p. 149.
(367)

the period of this strange excitement, was made the only test of excellence, no matter how scanty its quantity, no matter how diminutive or miserable the carcass. Governed by such views, the holders of most of our Merino flocks purchased these over-delicate Saxons, and the consequence was as might have been foreseen—their flocks were ruined."



SAXON RAM

SAXONS.—"In the year 1765, Augustus Frederick, Elector of Saxony, obtained permission from the Spanish Court to import two hundred Merinos, selected from the choicest flocks of Spain. They were chosen principally from the Escorial flock, and on their arrival in Saxony, were placed on a private estate belonging to the Elector, under the care of Spanish shepherds. So much importance was attached to the experiment, as it was then considered, that a commission was appointed to superintend the affairs of the establishment; and it was made its duty to diffuse information in relation to the management of the new breed; to dispose of the surplus rams at prices which would place them within the reach of all holders of sheep; and finally, by explaining the superior value of the Merinos, to induce the Saxon farmers to cross them with their native breeds. Popular prejudice, however, was strong against them, and this was heightened by the ravages of the scab, which had been introduced with them from Spain, and which proved very destructive before it was finally eradicated. But when it became apparent that the Merino, so far from degenerating, had improved in the quality of its wool, in Saxony, "the wise and patriotic efforts of the Elector began to reap their merited success, and a revolution took place in popular sentiment. The call for rams became so great that the Government resolved on a new importation, to enable them more effectually to meet it, and to improve still farther the stock already obtained. For this purpose an individual, considered one of the best judges of sheep in Saxony, was dispatched to Spain in 1777, with orders to select three hundred. For some reason, probably because he experienced difficulty in obtaining a greater number presenting all the qualifications he sought, he return-

ed with but one hundred and ten. They were from nearly all the different flocks of Spain, but principally the Escurial—and were considered decidedly superior to the first importation. In addition to the establishment at Stolpen, already founded, others were now commenced at Rennersdorf, Lohmen, &c.; schools were established for the education of shepherds; publications were distributed by the commissioners to throw information on the subject before the people; and the Crown tenants, it is said, were each required to purchase a certain number of the sheep."

Mr. Spooner* states that there are two distinct breeds of the Saxon Merino sheep, the first "having stouter legs, stouter bodies, head and neck comparatively short and broad, body round. The wool grows most on the face and legs—the grease in the wool is almost pitchy." The other breed called Escurial have longer legs, with a long, spare neck and head, with very little wool on the latter, and a finer, shorter and softer character in its fleece, but less in quantity. The fleece in the Escurial averages from one and a half to two pounds in ewes, and two to three pounds in rams and wethers, while in the others it is from two and a quarter to three and a quarter in ewes, and from four to six pounds in ram and wethers. These varieties cannot be amalgamated successfully.

The preceding portrait is a favorable specimen of the Escurial Saxon, copied from a cut, after a drawing by Harvey, in Mr. Spooner's work.

That the German shepherds have sacrificed the hardiness of the Merino, and indeed almost everything else, for fineness of staple, there can be but little doubt. Their method of managing the sheep and its effects are thus described by Mr. Carr, a large sheep-owner of Germany:†

"They are always housed at night, even in summer, except in the very finest weather, when they are sometimes folded in the distant fallows, but never taken to pasture until the dew is off the grass. In the winter they are kept within doors altogether, and are fed with a small quantity of sound hay, and every variety of straw, which has not suffered from wet, and which is varied at each feed; they pick it over carefully, eating the finer parts, and any grain that may have been left by the threshers. Abundance of good water to drink, and rock-salt in their cribs, are indispensables. . . . They cannot thrive in a damp climate, and it is quite necessary that they should have a wide range of dry and hilly pasture of short and not over-nutritious herbage. If allowed to feed on swampy or marshy ground, even once or twice, in autumn, they are sure to die of liver-complaint in the following spring. If they are permitted to eat wet grass, or exposed frequently to rain, they disappear by hundreds with consumption. In these countries it is found the higher bred the sheep is, especially the Escurial, the more tender!"

Such are the common views of the sheep, and their treatment over Germany, Prussia, and Austria. Various statements of the methods adopted by Baron Geisler, Graf Hunyadi, and other eminent flockmasters, will be found in Dr. Bright's Travels in Lower Hungary, Paget's Travels in Hungary and Transylvania, Jacob's Travels in Germany, &c.

The qualities of the Saxons as breeders and nurses, may be inferred from the following regulations, for the management of his flock, by Baron Geisler.‡

"During the lambing period, a shepherd should be constantly day and night in the cote, in order that he may place the lamb, as soon as it is cleaned, together with its mother, in a separate pen, which has been before prepared. The ewes which have lambed should, during a week, be driven neither to water or pasture; but low troughs of water for this purpose are to be introduced into each partition, in order that they may easily and at all times quench their thirst. It is also very useful to put a small quantity of barley-meal into the water, for by this means the quantity of the ewe's milk is much increased. When the lambs are so strong that they can eat, they are to be separated by degrees from their mothers, and fed with the best and finest oats, being suffered at first to go to them but three times a day, early in the morning, at mid-day, and in the evening, and so to continue till they can travel to pasture, and fully satisfy themselves."

* Spooner, p. 57.
(369).....12

† Quoted by Spooner, p. 58.

‡ Ibid., p. 59.

The following history of the introduction of the Saxons into the United States, was compiled by me from written memoranda, and the oral statements of Mr. Grove, submitted to the Committee of New-York State Agricultural Society, already alluded to, of which I was Chairman, and was published in my Report, credited, of course, to Mr. Grove individually, as no other member of the Committee was conversant with the facts narrated.*

"The first importation of Saxony sheep into the United States was made by Mr. Samuel Henshaw, a merchant of Boston, at the instance of Col. James Shepherd, of Northampton. They were but six or seven in number. In 1824, Messrs. G. & T. Searle, of Boston, imported 77 Saxon sheep. They were selected and purchased by a Mr. Kretchman, a correspondent of the above firm, residing in Leipsic, and shipped at Bremen on board the American schooner *Velocity*. I was engaged to take charge of the sheep on the passage, and I also shipped six on my own account. I am sorry to say that as many as one-third of the sheep purchased by Kretchman, (who shared profit and loss in the undertaking,) were not pure-blooded sheep. The cargo were sold at auction at Brooklyn, as 'pure-blooded electoral Saxons,' and thus unfortunately in the very outset the pure and impure became irrevocably mixed. But I feel the greatest certainty that the Messrs. Searle intended to import none but the pure stock—the fault lay with Kretchman. In the fall of 1824, I entered into an arrangement with the Messrs. Searle to return to Saxony, and purchase in connection with Kretchman, from 160 to 200 Electoral sheep. I was detained at sea seven weeks, which gave rise to the belief that I was shipwrecked and lost. When I finally arrived, the sheep had been already bought by Kretchman. On being informed of what the purchase consisted, I protested against taking them to America, and insisted on a better selection, but to no purpose. A quarrel ensued between us, and Kretchman even went so far as to engage another to take charge of the sheep on their passage. My friends interposing, I was finally induced to take charge of them. The number shipped was 167, 15 of which perished on the passage. They were sold at Brighton, some of them going as high as from \$400 to \$450. A portion of this importation consisted of grade sheep, which sold as high as the pure-bloods, for the American purchasers could not know the difference. It may be readily imagined what an inducement the Brighton sale held out to speculation, both in this country and Saxony. The German newspapers teemed with advertisements of sheep for sale, headed 'Good for the American Market;' and these sheep, in many instances, were actually bought up for the American market at five, eight or ten dollars a head, when the pure-bloods could not be purchased at from less than \$30 to \$40. In 1836, Messrs. Searle imported three cargoes, amounting in the aggregate to 513 sheep. They were of about the same character with their prior importations, in the main good, but mixed with some grade sheep. On the same year a cargo of 221 arrived, on German account, Emil Bach, of Leipsic, supercargo. A few were good sheep and of pure blood; but taken as a lot they were miserable. The owners sunk about \$3,000. Next came a cargo of 210 on German account; Wasmuss and Multer, owners. The whole cost of these was about \$1,125, in Germany. With the exception of a small number, procured to make a flourish on, in their advertisements of sale they were sheep having no pretensions to purity of blood. In 1827, the same individuals brought out another cargo. These were selected exclusively from grade flocks of low character. On the same year the Messrs. Searle made their last importation, consisting of 182 sheep. Of these I know little. My friends in Germany wrote me that they were like their other importations, a mixture of pure and impure blooded sheep. It is due, however, to the Messrs. Seale to say that, as a whole, their importations were much better than any other made into Boston.

"I will now turn your attention to the importations made into other ports. In 1825, 13 Saxons arrived in Portsmouth. They were miserable creatures. In 1826, 191 sheep arrived in New-York, per brig *William*, on German account. A portion of these were well descended and valuable animals, the rest were grade sheep. In June the same year, the brig *Louisa* brought out 173 on German account. Not more than one-third of them had the least pretensions to purity of blood. Next we find 158, shipped at Bremen, on German account.—Some were diseased before they left Bremen, and I am happy to state that twenty-two died before their arrival in New-York. All I intend to say of them is, that they were a most curious and motley mess of wretched animals. The next cargo imported arrived in the brig *Maria Elizabeth*, under my own care. They were 165 in number, belonging to myself and F. Gebhard, of New-York. These sheep cost me \$65 a head when landed in New-York.—They sold at an average of \$50 a head, thus sinking about \$2,400! I need not say that they were exclusively of pure blood. A cargo of 81 arrived soon after, but I know nothing of their quality. The next importation consisted of 184, on German account, per brig *Warren*. With a few exceptions they were pure-blooded and good sheep. We next have an importation of 200 by the Bremen ship *Louisa*. They were commonly called the 'stop sale sheep.

* Mr. Morrel in his *American Shepherd*, quotes this as a "Report" drawn and read by Mr. Grove, (one is left to infer,) before the New-York State Agricultural Society. This is doubtless an inadvertance.

They were of the most miserable character, some of them being hardly half-grade sheep.—The ship *Phebe Ann* brought 120 sheep, of which I know little; and 60 were landed at Philadelphia, with the character of which I am unacquainted. Having determined to settle in America, I returned to Saxony, and spent the winter of 1826–7 in visiting and examining many flocks. I selected 115 from the celebrated flock of Machern, embarked on board the ship *Albion*, and landed in New-York June 27, 1827. In 1828, I received 80 more from the same flock, selected by a friend of mine, an excellent judge of sheep. I first drove them to Shaftsbury, adjoining the town of Hosc, where I now reside. On their arrival they stood me in \$70 a head, and the lambs half that sum."

"It will be inferred from the facts above stated that there are few Saxon flocks in the United States that have not been reduced to the quality of grade sheep, by the promiscuous admixture of the pure and the impure which were imported together, and *all* sold to our breeders as pure stock."

And independent of this, there are but exceedingly few flocks which have not been *again* crossed with the Native or Merino sheep of our country, or both. Those who early purchased the Merino, crossed them with the Native; and, when the Saxons arrived, these mongrels were bred to Saxon rams. This is the history of probably three-quarters of the "Saxon" flocks of the United States, and among them some, as *I know*, among the most celebrated.

As these sheep have now so long been bred toward the Saxon that their wool equals that of the pure-bloods, it is exceedingly problematical in my mind whether they are any worse for the admixture: when crossed only with the Merino, it is undoubtedly to their advantage. Though I once thought differently, experience has satisfied me that the American Saxon, with these early crosses in its pedigree, is a hardier and more easily kept animal than the pure Escorial or Electoral Saxon. As with the Merino, climate, feed, and other causes, have doubtless conspired to add to their size and vigor; but, after all, I have not a doubt they usually owe more of it to those early crosses.

The fleeces of the American Saxons weigh, on the average, from 2 or 2½ to 3 lbs. They are, comparatively speaking, a tender sheep, requiring regular supplies of good food, good shelter in winter, and protection in cool weather from storms of all kinds; but they are evidently hardier than the parent German stock. In docility and patience under confinement, late maturity, and longevity, they resemble the Merinos, from which they are descended; though they do not mature so early as the Merino, nor ordinarily live so long. They are poorer nurses; their lambs smaller, feebler, and far more likely to perish, unless sheltered and carefully watched. They do not fatten so well, and, being considerably lighter, they consume an amount of food correspondingly less.

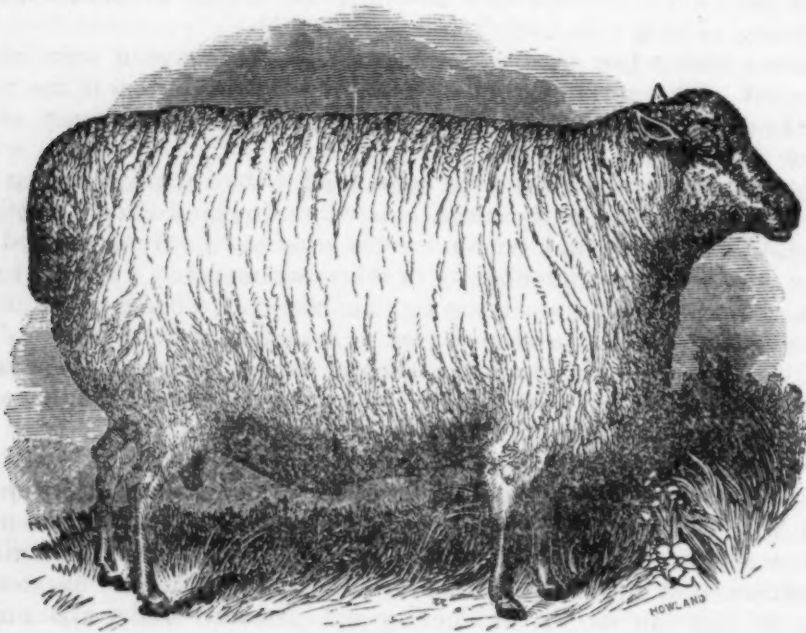
Taken together, the American Saxons bear a much finer wool than the American Merinos; but Dr. Emmons's measurements show that this is not always the case, and many breeders of Saxons are now crossing with the Merino, in the expectation of increasing the weight of their fleeces without deteriorating its quality.* Though I am in possession of wool from Saxons in Connecticut and Ohio, which compares well with the higher grades of German wool,† and though there are doubtless other flocks of equal quality in the country,‡ our Saxon wool, as a whole, falls considerably below that of Germany; and I never have seen a *single lock* of the American equaling some samples, given me by a friend recently

* Mr. Lawrence believes this practicable, and Mr. Morrel and various other Saxon breeders have for some time bred in this way.

† Fully equaling, and, I think, better than some German wool I recently saw, which, all expenses included, stood the purchaser in \$1 60 per pound!

‡ Dr. Emmons stated, subsequently to his measurements above, that he had received wool from the flock of Dr. Beckman, considerably finer than the Saxon wool figured.

from Europe, which came from Styria, south of Vienna, in Austria. The inferiority of the American to the German wool is not due to climate or other natural causes, nor is it owing to a want of skill on the part of our breeders. It is owing to the fact that but a very few of our manufacturers have ever felt willing to make that discrimination in prices which would render it profitable to breed those small and delicate animals which produce this exquisite quality of wool. No American breeder thinks of housing his sheep from the *summer* rains and *dew*, or observing any of the *hot-house* regulations—at least in the summer—of Graf Hunyadi, or Baron Geisler! If he did, his wool would not probably pay *half* of its first cost. When our manufacturers wish to find these wools in the *home* market, they must learn to *pay* for them in the *home* market as liberally as they are *compelled* to to obtain them in foreign ones!



THE NEW LEICESTER, OR BAKEWELL.

The portrait above is copied from one of a sheep of this variety, belonging to the Duke of Bedford, given in Mr. Youatt's work on Sheep.

"The unimproved Leicester was a 'large, heavy, coarse-wooled breed' of sheep, inhabiting the midland counties of England. It is described also as having been 'a slow feeder, and its flesh coarse-grained, and with little flavor.' The breeders of that period regarded only size and weight of fleece. The celebrated Mr. Bakewell, of Dishley, was the first who adopted a system more in accordance with the true principles of breeding. He selected from the flocks about him those sheep 'whose shape possessed the peculiarities which he considered would produce the largest proportion of valuable meat, and offal,' and having observed that animals of medium size possess a greater aptitude to take on flesh, and consume less food than those which are larger, and that prime fattening qualities are rarely found in sheep carrying a great weight of wool, he gave the preference to those of smaller size, and was satisfied with lighter fleeces." To reach the wonderful results obtained by Mr. Bakewell, it was supposed that he resorted to a cross with some other varieties, but it is believed by some that he owed his success only to a judicious principle of selection, and a steady adherence to certain principles of breeding.

It is exceedingly unfortunate that this eminent breeder has left us so much in the dark in relation to those principles of breeding, adopted by him, which led to such signal success in his efforts to improve both the cattle and sheep of the region in England in which he resided. All of his measures were veiled in impenetrable secrecy even from his most intimate friends, and he died without voluntarily throwing the least light on the subject. The whole inception and management of his famous "Dishley Society"* betrays selfishness the most intense, and, in plain English, *meanness* the most unalloyed. Should a man claiming to be a gentleman, in *this* country, make valuable discoveries in breeding, or in any other department of husbandry, and closely conceal them from the public, his conduct would meet with universal reprehension and contempt;† yet the thing seems to be considered a matter of course, or is at least passed over without censure, in Youatt, Spooner, Bischoff, and a host of earlier writers, all of whom laud Mr. Bakewell to the echo!

"The improved Leicester is of large size, but somewhat smaller than the original stock, and in this respect falls considerably below the coarser varieties of Cotswold, Lincoln, &c. Where there is a sufficiency of feed, the New Leicester is unrivaled for its fattening properties, but it will not bear hard stocking, nor must it be compelled to travel far in search of its food. It is, in fact, properly and exclusively a lowland sheep. In its appropriate situation, on the luxuriant herbage of the highly cultivated lands of England, it possesses unrivaled earliness of maturity; and its mutton, when not too fat, is of a good quality, but is usually coarse, and comparatively deficient in flavor, owing to that unnatural state of fatness which it so readily assumes, and which the breeder, to gain weight, so generally feeds for. The wethers, having reached their second year, are turned off in the succeeding February or March, and weigh at that age from thirty to thirty-five pounds to the quarter. The wool of the New Leicester is long—averaging, after the first shearing, about six inches; and the fleece of the American animal weighs about six pounds. It is of coarse quality, and little used in the manufacture of cloths, on account of its length, and that deficiency of felting properties common, in a greater or less extent, to all the English breeds. As a combing wool, however, it stands first, and is used in the manufacture of the finest worsteds, &c.

"The high bred Leicesters of Mr. Bakewell's stock became shy breeders and poor nurses, but crosses subsequently adopted" have, to some extent, obviated these defects. So far as my experience has extended in this country, however, the lambs are not very hardy, and require considerable attention at the time of yearning, particularly if the weather is even moderately cold or stormy. Neither can the grown sheep be considered, in my opinion, *very* hardy. They are much affected by sudden changes in the weather, and a sudden change to cold is pretty sure to be registered on their noses by unmistakable indications of catarrh or 'snuffles.'

"In England, where mutton is generally eaten by the laboring classes, the meat of this variety is in very great demand; and the consequent return which a sheep possessing such fine feeding qualities is enabled to make, renders it a general favorite with the breeder. Instances are recorded of the most extraordinary prices having been paid for these ani-

* For the Regulations of this Society, see Youatt, p. 317.

† Of course I do not include in this category those nameless venders of recipes for killing Canada Thistles, rats, &c. &c.; and men who spend their time and property in inventing improved implements, etc., are entitled to the pay offered by the Patent laws. But, among our agriculturists of standing, who has ever known of a single instance of a valuable discovery in the operations of husbandry being concealed or withheld from the public? Who has known a breeder of rank wheedle a partner out of one-half of a valuable bull, and then refuse the quondam partner the services of that bull at any price, lest he should prove a dangerous rival in breeding? Yet, what English writer has expressed any contempt for such meanness? These things would not "go down" among us "*reputators*!"

mals, and Mr. Bakewell's celebrated buck "Two Pounder" was let for the enormous price of four hundred guineas for a single season! The New Leicester has spread into all parts of the British Dominions, and been imported into the other countries of Europe and the United States. They were first introduced into our own country by the late Christopher Dunn, Esq., of Albany, about twenty-five years since.* Subsequent importations have been made by Mr. Powel, of Philadelphia, and various other gentlemen."

It is no more than justice to say that this breed has never proved a favorite with any large class of American farmers. Our long, cold winters, but more especially our dry, scorching summers, when it is often difficult to obtain the rich, green, tender feed in which the Leicester delights—the general want of green feed in the winter, robs it of its early maturity, and even of the ultimate size which it attains in England. Its mutton is too fat, and the fat and lean are too little intermixed, to suit American taste. Its wool is not very salable, from the much to be regretted dearth of worsted manufactories in our country. Its early decay and loss of wool constitute an objection to it, in a country where it is often so difficult to advantageously turn off sheep, particularly ewes. But, notwithstanding all these disadvantages, on rich lowland farms, in the vicinities of considerable markets, it will always probably make a profitable return.

The following description of what constitutes the desirable characteristics of this breed, is from the pen of Mr. Youatt:†

"The head should be hornless, long, small, tapering toward the muzzle, and projecting horizontally forward. The eyes prominent, but with a quiet expression. The ears thin, rather long, and directed backward. The neck full and broad at its base, where it proceeds from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the poll. The breast broad and full; the shoulders also broad and round, and no uneven or angular formation where the shoulders join either the neck or the back—particularly no rising of the withers, or hollow behind the situation of these bones.—The arm fleshy through its whole extent, and even down to the knee. The bones of the leg small, standing wide apart; no looseness of skin about them, and comparatively bare of wool. The chest and barrel at once deep and round; the ribs forming a considerable arch from the spine, so as in some cases, and especially when the animal is in good condition, to make the apparent width of the chest even greater than the depth. The barrel ribbed well home; no irregularity of line on the back or belly, but on the sides; the carcass very gradually diminishing in width toward the rump. The quarters long and full, and, as with the fore legs, the muscles extending down to the hock; the thighs also wide and full. The legs of a moderate length; the pelt also moderately thin, but soft and elastic, and covered with a good quantity of white wool—not so long as in some breeds, but considerably finer."

THE SOUTH-DOWN.—"This breed of sheep has existed for several centuries in England, on a range of chalky hills called the South Downs. They were, as recently as 1776, small in size, and of a form not superior to the common woolled sheep of the United States. Since that period, a course of judicious breeding, pursued by one man (Mr. Ellman, of Glynde, in Sussex), has mainly contributed to raise this variety to its present high degree of perfection, and that, too, without the admixture of the slightest degree of foreign blood. In our remarks on this breed of sheep, it will be understood that we speak of the pure improved family, as the original stock, presenting, with trifling modifications, the same characteristics which they exhibited sixty years since, are yet to be found in England—and as the middle space is occupied by a variety of grades, rising or falling in value, as they approximate to or recede from the improved blood.

"The South-Down is an upland sheep, of medium size, and its wool, which in point of length belongs to the middle class," has been estimated to rank with half-blood Merino, and was so estimated in my Report, quo-

* Now about 35 years since.
(374)

† Youatt on Sheep, p. 110.

tations from which constitute so large a portion of this Letter. But both subsequent experience, and information derived from other sources, have convinced me of the erroneousness of this opinion. South-Down wool is



SOUTH-DOWN RAM.

essentially different from Merino wool of any grade, though the fibre in some of the finest fleeces may be of the same apparent fineness with half or one-quarter blood Merino.

The following cut from Youatt,* gives the microscopic appearance, says that gentleman, of a "prime specimen of picklock South-Down wool," 1 being viewed as a transparent, and 2 as an opaque object." The fibre is $\frac{1}{800}$ th part of an inch in diameter.



The cups or leaves of 2 "are roughened irregular, and some of the leaves have exceedingly short angles," but they are far sharper, more numerous and regular (the points which give wool its felting property) than in ordinary South-Down wool. In the latter, the cups are rounded and have a "rhomboidal" instead of that sharp and "hooked" character which distinguishes the Merino and Saxon.

South-Down wool is deficient in felting properties. It makes a "furzy, hairy" cloth, and is no longer used in England, unless largely admixed with foreign wool, even for the lowest class of cloths.

The following testimony was given by some of the most eminent manufacturers, wool-factors, staplers, and merchants of England, before the Committee of the House of Lords in 1828, several times previously alluded to:†

* Youatt, p. 236.
(375)

† See Bischoff, vol. ii. pp. 145 to 155.

Mr. CHARLES BULL, wool agent, Lewes.—“Formerly it [South-Down wool] was used for clothing purposes; now it is impossible to sell it for that manufacture; . . . it is used for baizes and flannels in a very large way.”

Mr. WILLIAM CUNNINGTON, wool-stapler, Wiltshire.—“The public will not wear the South-Down cloths, they are so very coarse.”

Mr. JAMES FISON, wool dealer, Thetford.—“There has been deterioration in the quality of (South-Down) wool; the general weight of the fleece 20 years ago was 2 pounds to 2½, and it is now 3 pounds to 3½, our wool used to be made into cloths, and returned into Norfolk, and used by myself and the agriculturists. We do not get the same cloth now; neither myself nor the farmer would wear it, because of the deterioration of quality.”

Mr. JAMES HUBBARD, wool agent, Leeds.—“South-Down wool is not ‘now employed for the purpose of making cloth; it has been forced down two or three steps in the scale of wool, and is now used for flannels and baize. . . . The wool gets more frothy and open, and in manufacturing it does not felt and improve so well; it works more flannelly.’ . . .

Mr. JOHN BROOKE, manufacturer, Howley.—“Manufacture principally blue cloths from 7s. to 24s. and 25s. per yard, and also narrow cloths. . . . Had the Duke of Norfolk’s wool, Mr. Ellman, junior’s, clip from 1817 and 1822, and Mr. Ellman, senior’s, from 1817 to 1821. . . . Kept to English wool longer than any house in the neighborhood. . . . Ceased to manufacture it entirely in 1823 or 1824, . . . found our neighbors were sending out better cloths than we were, not only at the same price, but better manufactured cloths, and we lost our customers.”

Mr. BENJAMIN GOTT, merchant and manufacturer, Leeds.—“I formerly used 150 packs of English wool weekly; the disuse of English wool was gradual, commencing about the year 1819, continuing to 1823 and 1824, about which time I began to manufacture exclusively from foreign wool. The disuse of English wool arose from the quality and the advantage of using foreign wool compared with our own. I could not now make an article which would be merchantable at all for the foreign market, (that remark applies equally to the home trade,) in certain descriptions of cloth, except of foreign wool.” . . . These wools (the domestic and foreign,) “have different properties.”

Mr. WILLIAM IRELAND, Blackwell Hall factor, London.—“We have been using English wool for second and livery cloths, but recently they have been so very much lowered in quality we have not been able to make use of them at all, and have been obliged to make use of low German and low Spanish wools for that purpose.”

Mr. J. SUTCLIFFE, wool-stapler, Huddersfield.—“South-Down wool was formerly applied for making cloth for home consumption regularly, for the clothing of servants, &c. It was also used for army clothing. It is now no longer used for those purposes. It makes a fuzzy, soft, hairy piece; it has not that fastness in it that foreign wool has.”

Many other individuals testify to the same effect, and the extremely low character of South-Down wool for carding purposes may be regarded as definitely settled. But as it has deteriorated it has increased in length of staple in England, and to such an extent that improved machinery enables it to be used as a combing wool—for the manufacture of worsteds. Where this has taken place it is quite as profitable, in England, as when it was finer and shorter. In the United States, where the demand for combing-wool is so small that it is easily met by a better article, perhaps this would not be the case. And it may be problematical whether the proper combing length will be easily reached, or at least maintained in this country, in the absence of that high feeding system which has undoubtedly given the wool its increased length in England.*

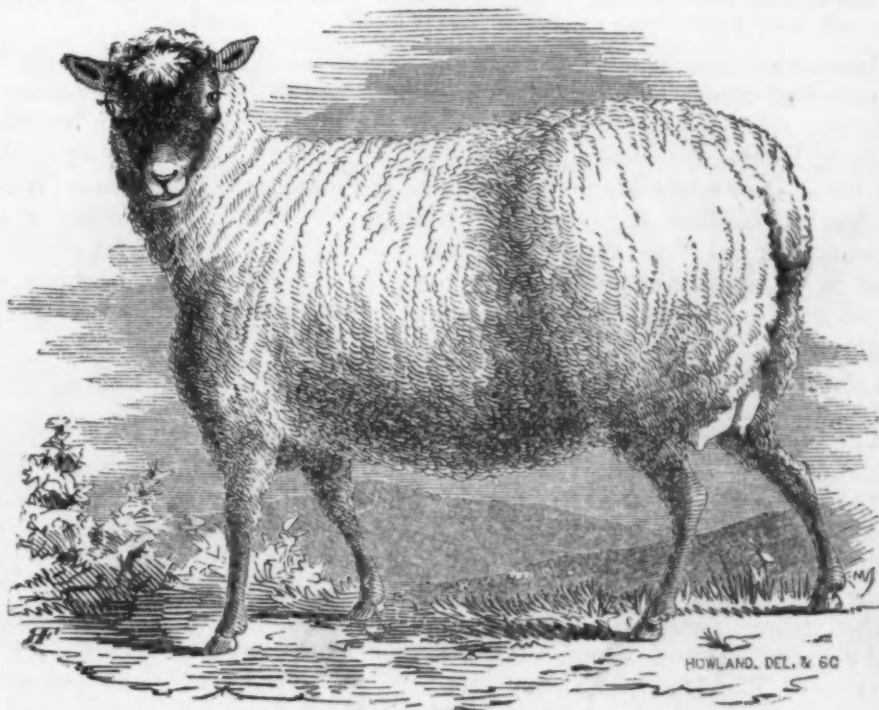
The average weight of fleece in the hill-fed sheep is 3 lbs.; on rich lowlands a little more. Mr. John Ellman, Jr., testified before the Committee of the House of Lords that he was then “keeping his sheep better than formerly—fattening them, which rendered the fleece heavier—that they then averaged about 3 lbs. of wool.”† “But the Down is cultivated more particularly for its mutton, which for quality takes precedence of all other” (from sheep of good size) “in the English markets. Its early maturity and extreme aptitude to lay on flesh, render it peculiarly valuable for this purpose. The Down is turned off at two years old, and its weight at that age is, in England, from 80 to 100 lbs. High fed wethers have reached

* Nearly or quite every individual who testifies to the deterioration and increased length of the South-Down wool before the Lord’s Committee, assign this as the cause of the change.

† Bischoff, vol. II., p. 137.

from 32 to even 40 lbs. a quarter! Notwithstanding its weight, the Down has, in the language of Mr. Youatt, a patience of occasional short keep, and an endurance of hard stocking, equal to any other sheep. This gives it a decided advantage over the bulkier Leicester, Lincolns, &c., as a mutton sheep, in hilly districts and those producing short and scanty herbage. It is hardy and healthy, though in common with the other English varieties much subject to the catarrh or "snuffles," and no sheep better withstands our American winters. The ewes are prolific breeders and good nursers. The Down is quiet and docile in its habits, and though an industrious feeder, exhibiting little disposition to rove." Like the Leicester, it is comparatively a short-lived animal, and the fleece continues to decrease in weight after it reaches maturity. It crosses better with short and middle wooled breeds than the Leicester. "A sheep possessing such qualities must of course be valuable in upland districts in the vicinity of markets. They have been introduced into every part of the British Dominions, and imported into various other countries. The Emperor of Russia paid Mr. Ellman three hundred guineas for two rams, and in 1800 'a ram belonging to the Duke of Bedford, was let for one season at eighty guineas, two others at forty guineas each, and four more at twenty-eight guineas each.' These valuable sheep were introduced into the United States a few years since by Col. J. H. Powell, of Philadelphia, and a small number was imported by one of the members of this Committee in 1834. The last were from the flock of Mr. Ellman, at a cost of \$60 a head. Several other importations have since taken place."

The ram and ewe, the portraits of which are given, are the descendants of the importation of Francis Rotch, Esq., alluded to in the preceding paragraph. They are most spirited likenesses, and were kindly furnished me by that gentleman, to accompany this Letter. They are exceedingly



SOUTH-DOWN EWE.

characteristic of the Ellman stock. Not so large as the later importations of Mr. Rotch from the celebrated flock of Mr. Webb, they are, in the

opinion of that gentleman, as well as in my own, a more beautifully formed and not less profitable animal. For compactness—great weight in a small compass—they are perhaps unrivaled.

The following is the description of the perfect South-Down by Mr. Ellman, the founder of the improved breed :

"The head small and hornless ; the face speckled or gray and neither too long nor too short ; the lips thin, and the space between the nose and the eyes narrow ; the under jaw or chap fine and thin ; the ears tolerably wide and well covered with wool, and the forehead also, and the whole space between the ears well protected by it, as a defence against the fly.

"The eye full and bright but not prominent. The orbits of the eye, the eye-cap or bone not too projecting, that it may not form a fatal obstacle in lambing.

"The neck of a medium length, thin toward the head, but enlarging toward the shoulders, where it should be broad and high and straight in its whole course above and below. The breast should be wide, deep, and projecting forward between the fore-legs, indicating a good constitution and a disposition to thrive. Corresponding with this, the shoulders should be on a level with the back, and not too wide above : they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it.

"The ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than others, the back flat from the shoulders to the setting on of the tail ; the loin broad and flat ; the rump broad and the tail set on high, and nearly on a level with the spine. The hips wide ; the space between them and the last rib on either side as narrow as possible, and the ribs generally presenting a circular form like a barrel.

"The belly as straight as the back.

"The legs neither too long nor too short ; the fore-legs straight from the breast to the foot ; not bending inward at the knee, and standing far apart both before and behind ; the hock having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full, the bones fine, yet having no appearance of weakness, and of a speckled or dark color.

The belly well defended with wool, and the wool coming down before and behind to the knee and to the hock ; the wool short, close, curled and fine, and free from spiry projecting fibres."



THE COTSWOLD SHEEP.

The above cut is copied from one in Mr. Spooner's work on Sheep—the original drawing being by Harvey.

The Cotswolds, until improved by modern crosses, were a very large,

coarse, long-legged, flat-ribbed variety, light in the fore-quarter—shearing a long, heavy, coarse fleece of wool. They were hardy, prolific breeders and capital nurses. They were deficient in early maturity, and did not possess feeding properties equaling those of the Down or New Leicester. To a cross with the latter variety we owe the modern or improved Cotswold. Having had no personal experience with the breed,* I prefer quoting the descriptions of the later standard English writers, to the task of compilation.

The following is from Spooner :†

"The Cotswold is a large breed of sheep, with a long and abundant fleece, and the ewes are very prolific and good nurses. Formerly they were bred only on the hills, and fattened in the valleys, of the Severn and the Thames; but with the inclosure of the Cotswold Hills and the improvement of their cultivation they have been reared and fattened in the same district. They have been extensively crossed with the Leicester sheep, by which their size and fleece have been somewhat diminished, but their carcasses considerably improved, and their maturity rendered earlier. The wethers are now sometimes fattened at 14 months old, when they weigh from 15 lbs. to 24 lbs. per quarter, and at two years old increase to 20 lbs. or 30 lbs. The wool is strong, mellow, and of good color, though rather coarse, 6 to 8 inches in length, and from 7 lbs. to 8 lbs. per fleece. The superior hardihood of the improved Cotswold over the Leicester, and their adaptation to common treatment, together with the prolific nature of the ewes and their abundance of milk, have rendered them in many places rivals of the New Leicester, and have obtained for them, of late years, more attention to their selection and general treatment, under which management still farther improvement appears very probable. They have also been used in crossing other breeds, and, as before noticed, have been mixed with the Hampshire Downs. It is, indeed, the improved Cotswold that, under the term New or Improved Oxfordshire Sheep, are so frequently the successful candidates for prizes offered for the best long-wooled sheep at some of the principal agricultural meetings or shows in the Kingdom. The quality of the mutton is considered superior to that of the Leicester, the tallow being less abundant, with a larger development of muscle or flesh. We may, therefore, regard this breed as one of established reputation, and extending itself throughout every district of the Kingdom."

Of the method of crossing between the Cotswolds and Leicester, Mr. Youatt remarks :‡

"The degree to which the cross may be carried must depend upon the nature of the old stock, and on the situation and character of the farm. In exposed situations, and somewhat scanty pasture, the old blood should decidedly prevail. On a more sheltered soil, and on land that will bear closer stocking, a greater use may be made of the Leicester. Another circumstance that will guide the farmer is the object that he principally has in view. If he expects to derive his chief profits from the wool, he will look to the primitive Cotswolds; if he expects to gain more as a grazier, he will use the Leicester ram more freely."

Cotswold sheep of good quality have been imported into the United States by Messrs. Corning & Sotham, of Albany, and are now bred by the latter gentleman. I believe there were several earlier importations—but of their dates or particulars I am not advised.

THE CHEVIOT SHEEP.—Sheep of this breed have been imported into my immediate neighborhood, and were subject to my frequent inspection for two or three years. They had the appearance of small Leicesters, but were considerably inferior in correctness of proportions to high-bred animals of that variety. They perhaps more resemble a cross between the Leicester and the old "native" or common breed of the United States. Their fleeces were too coarse to furnish a good carding wool—too short for a good combing one. Mixed with a smaller lot of better wool, their this year's clip sold for 29 cents per pound, while my heavier Merino fleeces sold for 42 cents per pound. They attracted no notice, and might at any time have been bought of their owner for the price of common sheep of the same weight. I believe the flock was broken up and sold to butchers and others this spring, after shearing. They were certainly inferior to the description of the breed by Sir John Sinclair, even in 1792, quoted by Mr. Youatt,|| and

* With every breed previously described, I have had ample personal experience. I have merely seen Cotswold flocks.

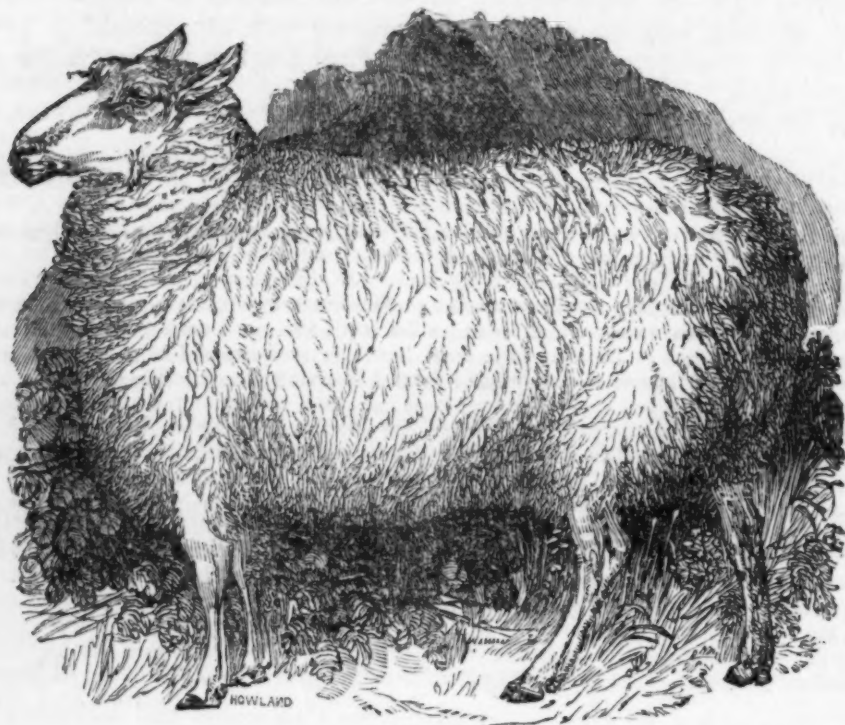
† Q. v., p. 99.

‡ Q. v., p. 340.

|| Q. v., pp. 285, 286.

had all the defects attributed to the original stock by Cully.* They might not, however, have been favorable specimens of the breed.

On the steep, storm-lashed Cheviot Hills, in the extreme North of England, this breed first attracted notice for their great hardiness in resisting



CHEVIOT EWE.

cold and feeding on coarse heathery herbage. A cross with the Leicester, pretty generally resorted to, constitutes the improved variety. The characteristics of the Leicester are quite evident in the portrait of the Cheviot Ewe, above, copied from Mr. Youatt.

Professor Low thus speaks of the result of this cross :

"The Cheviot breed amalgamates with the Leicester, and a system of breeding has been extensively introduced for producing the first cross of this descent. The rams employed are of the pure Leicester breed, and the progeny is superior in size, weight of wool, and tendency to fatten, to the native Cheviot. . . . The benefit, however, may be said to end with the first cross, and the progeny of this mixed descent is greatly inferior to the pure Leicester in form and fattening properties, and to the pure Cheviot in hardiness of constitution.

Of the improved Cheviot Mr. Spooner says :

"This breed has greatly extended itself throughout the mountains of Scotland, and in many instances supplanted the Black-faced breed ; but the change, though in many cases advantageous, has in some instances been otherwise, the latter being somewhat hardier, and more capable of subsisting on heathy pasturage. They are, however, a hardy race, well suited for their native pastures, bearing with comparative impunity the storms of winter, and thriving well on poor keep. Though less hardy than the black-faced sheep of Scotland, they are more profitable as respects their feeding, making more flesh on an equal quantity of food, and making it quicker. They have white faces and legs, open countenances, lively eyes, without horns. The ears are large, and somewhat singular, and there is much space between the ears and eyes. The carcass is long ; the back straight ; the shoulders rather light ; the ribs circular ; and the quarters good. The legs are small in the bone and covered with wool, as well as the body, with the exception of the face. The Cheviot wether is fit for the butcher at three years old, and averages from 12 lbs. to 18 lbs. per quarter—the mutton being of a good quality, though inferior to the South-Down, and of less flavor than the Black-faced. . . . The Cheviot, though a mountain breed, is quiet and docile, and easily managed. The wool is *fine*, (?) closely covers the body, assisting much in preserving it

* See Cully on Live Stock, p. 150.
(380)

from the effects of wet and cold; the fleece averaging about 3½ lbs. Formerly the wool was extensively employed for making cloths, but having given place to the finer Saxony wools, it has sunk in price, and been confined to combing purposes. It has thus become altogether a secondary consideration." . . .

If Mr. Spooner is not made to say that the wool is "fine" by an omission of qualifying words, or some other misprint, his ideas of *fineness* must be singular indeed! The South-Down wool, rejected for carding purposes, is several shades finer than the Cheviot! The latter is of about the quality of Leicester, the number of serrations about the same, and, says Mr. Youatt, speaking of the microscopic appearance of the wool, "the derivation of the breed (from the Leicester) is well illustrated by the formation of the fibre."

Mr. John Varley, manufacturer, of Stanningley, near Leeds, thus testified before the Lords' Committee:*

"I attribute the low price of Cheviot wool to deterioration; it is deteriorated very much in point of hair; it was formerly the fashion of the day for Cheviot wool to be worn as cloth; it is not the fashion now. It is not fit to make fine cloths, as it was then. . . . The wool is grown coarser and longer, and only fit to make low coatings and flushings."

This is confirmed by the testimony of other witnesses before the Committee; and Mr. Youatt on the same subject remarks,† "that the wool is inferior to the South-Down."

BROAD-TAILED ASIATIC AND AFRICAN SHEEP.—I allude to the Broad-tailed race of sheep, not from any high estimate which I place upon their value, but because they constitute one of the breeds now existing in a state of purity in the United States.

Some "Tunisian Mountain Sheep" were received by Col. Pickering when abroad, and were distributed by him in Pennsylvania.‡ They are highly spoken of by Col. Powell as a cross with the Dishley and South-Down. They have, I believe, long since become extinct.

It was Commodore Porter, I think, who, you informed me, sent home some of the Broad-tailed sheep of Asia, obtained from Smyrna, pure-blooded descendants of which yet exist in South Carolina.|| I have carefully examined the specimens of wool of the full blood and the grades of this variety forwarded by you. No. 3, taken from the skin of a full-blood, is 8 inches long, pure white, consisting of coarse hairs, uneven in their length and diameter—the same hair of uneven diameter in different parts of it, and the whole intermixed for about 4 inches from the roots, with a fine, downy or cottony wool. No. 2, about 3¾ inches long from the side of a three-fourths blood ram, is much evenner in quality, with no hairs as coarse or wool as fine as in No. 3. It contains some jarr, or short, sharp-pointed hairs, and is a dry, and, I should judge, rather unworkable wool, not *well* adapted to either carding or combing. No. 1, from thigh of same animal, is 8 inches long, resembles No. 3, but not so great a distinction between the hair and the wool. No. 4, from a three-fourths blood 4-year-old ewe, is about 2 inches long, contains a few colored hairs, resembles No. 2, but is somewhat coarser. All these samples are destitute of yolk, and apparently come from loose, light, dry, open fleeces. They do not strike me as wools which could be as profitably cultivated as many others, for any objects or under any circumstances.

If the object is mutton instead of wool, it seems to me that a better selection can be made, from some of the English breeds—which intermingle

* Bischoff, vol. ii., p. 144. Mr. Youatt quotes the substance of the above, and fully sustains Mr. Varley's views.

† Q. v., p. 285.

‡ See Essay on Various Breeds of Sheep, by Col. John Hare Powell, published in the Memoirs of the Board of Agriculture of the State of New-York, vol. iii., p. 377, (1826.)

|| In Letter Vth I inadvertently spoke of these as a *large* breed of sheep. They are not above medium size, or rather, may be said to be a smallish race.

their fat and muscle in such a manner as to render both palatable, instead of depositing a greatly disproportioned share of the former in one luscious mass, forming an impediment to breeding, and an unsightly appendage in the eye of the breeder.

All the different varieties of the Broad-tailed and Fat-rumped sheep will be found described in Youatt, and I will not now consume your time with them.

MORE OF THE VALUE OF CORN COBS AND CORN FODDER,

BUT NOT ENOUGH YET.

ROSWELL L. COLT, Esq., Paterson, N. J.

CLEVELAND, Ohio, August 2, 1847.

Dear Sir: I have been thinking a great deal on the subject of *Corn Cobs*, since you were here. The question is, Do they, or do they not, contain nutriment? I have come to the conclusion that they do for a certain time, after which, that they do not. Indian corn does not arrive at a state of perfection until fully six months after it has ripened, during which time it is extracting the saccharine from the cob. From harvest time until spring, cattle and swine should be fed upon cob-meal, on account of the nutriment contained in the cob; after that time the addition of the cob only aids in distending the intestines. The largest breeder of cattle in Northern Ohio is Gen. Oviatt, of Richfield, Medina Co. He informed me that when cattle are failing from some unknown cause, and when everything else has failed to bring them up, that feeding them boiled corn cobs, *exclusively*, will renovate them. I do not know at what season of the year he has fed them, but I venture to say it has been during fall or winter. The reasons why I have come to the above conclusions are, 1st, That new corn, or rather corn ground in January, will not produce near the amount of alcohol that it will in June, due allowance being made for the difference in moisture. 2d, Nature has not prepared corn for seed until it will readily fall from the cob; this will not occur until spring. It is usual in the West to leave the corn crop standing out all winter. The ear while growing stands erect; when ripened it turns toward the ground. The husk is a shield from the weather, and the process of perfecting the grain continues. Wheat and other grains are perfected before leaving the field, and shell readily.

A new use has been discovered for my Drier: a prominent brewer in New-York wishes to obtain it for drying malt for making pale ale. As it does not change the color or flavor of substances dried, it must answer a good purpose for malt, as it has proved in drying flour, corn and corn meal.

Should you feel any interest in corn meal, or should you wish a barrel of it for your own use, I would refer you to Messrs. Allen & Whittlesey, commission merchants, New-York, who had a quantity shipped to them from E. H. Leonard, of Elyria. It was dried on one of my patent driers.

Respectfully yours, &c.

J. R. STAFFORD.


We will not yet abandon the hope that some of our Agricultural Societies or Institutes, with ample funds at command, will offer liberal inducements to farmers and men of science to investigate the nature and value of this and the cotton and other plants in every light and relation in which they can be considered. We want to know not only the component parts and exact value of the corn cob at different periods, but we wish to know the proportion which the fodder bears to the grain. We wish to know by analysis how much each of the great staples of our country draws from the soil—how much from the atmosphere—and then how much of these elements of nutrition the soil where they are cultivated contains. More especially should all these staple plants, in all their parts, and in all stages of their growth—as well in their natural state as in their ashes—be thoroughly analyzed, by men known to be competent, and to take a conscientious interest in the welfare and honor of American Agri-

culture. It is the bounden duty of public institutions to have these *useful and practical ends* accomplished in return for the liberal support they receive.

Who knows—for who has analyzed—the real value of corn shucks, for instance, as food for cattle? And yet no portion of the immense product of corn fodder, in any shape, has been noticed in the decennial returns of our national wealth. We confess the views and reflections presented in the foregoing letter to be in many respects new to us; and farther investigations in this new line of inquiry would be far more useful than offering again, for the ten thousandth time, inducements to see how much of the grain of corn can be made on an acre—as if the grain constituted the entire value of the plant! So far from that, we heard Governor Sprigg, one of the largest and most accomplished planters of Maryland, say, some days since, that as food for *milch cows* in reference to the quantity and richness of the milk, and especially the latter, he was satisfied that the *shucks* of corn are incomparably preferable to timothy hay. “Give us but light.” We want inquiries pushed in new directions. We want new facts to be developed and “fixed,” and principles to be deduced from them, on which practical men may rely for practical results. In lieu of momentary excitement, amusement and humbuggery, we want the ascertainment of facts with a view to the establishment of principles as a sure guide for field practice. We want useful knowledge in lieu of “sounding brass” or a “tinkling cymbal.” It is generally supposed, for instance, that green fodder is better than the hay obtained from an equal weight of green grass, but the experiments of Boussingault show that this is not the case:

“A heifer was weighed, and fed for ten days on green fodder; each day a quantity equal in weight to that consumed was put aside to dry. The animal was again weighed, and fed for ten days on dry fodder, then weighed again. The experiment was repeated three times, and each time the animal weighed a little more after feeding on dry fodder than after the green. The difference was not enough to prove that the dry food was the more nutritious, although the experiments showed beyond a doubt that it was not inferior in effect to the other. [Ann. de Chem. et de Phys. xvii.; Chemical Gazette.]

AGRICULTURAL BOTANY.—We have not had time to examine, carefully, a small volume under this title, from the pen and the ripe knowledge of Doctor DARLINGTON; but, with our knowledge of his extensive researches in that department, and of his unambitious desire rather to be useful than to make a noise in the world, and from what we have seen of the work, we have no hesitation in commending it to public patronage, and to adoption in all our schools where there is any care to teach what is in after life to be really of value to all who aspire to be *intellectual farmers*. Apprehending, as is obvious, that the work might appear too technical for farmers, the author has endeavored to parry that objection in his Preface, and the fact ought to be kept in view, that his primary and leading object in undertaking it was to induce and to aid our young farmers to familiarize themselves with the *scientific names and botanical characteristics* of those plants in which they have a direct interest. To that end he has used all the means and appliances at his command, to facilitate a knowledge of the plants in question—adding appropriate and familiar observations in reference to the several species. The work, in short, does not profess to *teach Agriculture*, nor to illustrate the *management of plants*, but is merely an attempt—and in our judgment a most laudable, successful and needed one—to promote a more accurate knowledge of their character as objects of Natural History, and thereby enable farmers to discriminate correctly between species, and to treat of them in their discussions understandingly and confidently—a sort of knowledge and power which every father should desire for his son, as anxiously as, if his son were going to be a carpenter, he would wish him to know a *whip* from a *hand-saw*—or if to be a sailor, that he should know *something about navigation*—or is it that boys who are intended for the country are yet forever to be put off with any sort of education, as dry cattle are wintered on what nothing else will eat? Truly it would seem so; nor can we get the Press to help us make it otherwise.

 THE EDITOR OF THE FARMERS' LIBRARY has occasion to ask the indulgence of Correspondents for omissions, real or apparent, during his past summer's absence, chiefly in the mountains of Western Virginia. At the same time he feels himself called upon to acknowledge—but how can he adequately express—his gratitude for the hospitality enjoyed throughout an excursion embracing all the popular watering-places in that delightful region? Every convenience for traveling was offered over the whole route, by proprietors of railroads, steamboats and stages, (with a single exception,) and at every watering-place he was at once not only welcomed as a guest, but most kindly solicited to prolong his stay, and every facility in the way of conveyance and information tendered, to aid him in prosecuting his inquiries into the agricultural condition and economy of the districts in which he was sojourning. Some of his observations, as it is reasonable to apprehend, may not be pleasing to those whose lots are cast in the localities to which they refer—but would not the sacrifice of sincerity and truth be a poor, not to say a treacherous, return for so much courtesy and kindness? While he begs his friends, then, to believe that he returns to his post with a proper sense of what he owes them, that feeling will prompt him to persevere to the end, in a spirit of gratitude and candor, to vindicate and elevate, according to his humble abilities, the agricultural—at once the most important and neglected—interest of the country. J. S. S.,

New-York, September 11, 1847.

Ed. Farm. Lib.

PRICES CURRENT.

[Corrected, September 18, for the Monthly Journal of Agriculture.]

ASHES—Pots, 1st sort, '47. Φ 100 lb. 5 18 $\frac{1}{2}$ @ 5 25	Staves, White Oak, pipe, Φ M. 50 — @ —
Pearls, 1st sort, '47. — @ 6 50	Staves, White Oak, hhd. 40 — @ —
BEEWAX—American Yellow — 24 @ 24 $\frac{1}{2}$	Staves, White Oak, bbl. 30 — @ —
CANDLES—Mould, Tallow. Φ lb. — 12 @ 13	Staves, Red Oak, hhd. 24 — @ 28 —
Sperm — 30 @ 38	Hoops. — 20 @ 30 —
COTTON—From. — Φ lb. — 11 @ 14 $\frac{1}{2}$	Scantling, Eastern — 16 25 @ 22 50
COTTON BAGGING—Kentucky — 15 @ 16	Scantling, Oak. — 30 — @ 35 —
CORDAGE—American. — Φ lb. — 11 @ 12	Timber, Oak. — Φ cubic foot — 25 @ 30
DOMESTIC GOODS—Shirtings, Φ y. — 5 @ 11	Timber, White Pine. — 18 @ 25
Sheetings. — 6 $\frac{1}{2}$ @ 15	Timber, Georgia Yellow Pine — 28 @ 32
FEATHERS—American, live. — 28 @ 33	Shingles — Φ bunch 1 75 @ 2 25
FLAX—American — 7 $\frac{1}{2}$ @ 8	Shingles, Cedar, 3 feet, 1st quality. 26 — @ 30 —
FLOUR & MEAL—Genesee, Φ bbl. 5 75 @ 5 87 $\frac{1}{2}$	Shingles, Cedar, 3 feet, 2d quality. 24 — @ 28 —
Troy. — @ —	Shingles, Cedar, 2 feet, 1st quality. 18 — @ 22 —
Michigan — 5 37 $\frac{1}{2}$ @ 5 62 $\frac{1}{2}$	Shingles, Cedar, 2 feet, 2d quality. 16 — @ 20 —
Ohio — 5 37 $\frac{1}{2}$ @ 5 62 $\frac{1}{2}$	Shingles, Cypress, 2 feet. 15 — @ 18 —
Ohio, Round Hoop — @ —	Shingles, Company. — 35 — @ 38 —
Ohio, via New-Orleans. — @ —	MUSTARD—American — @ —
Pennsylvania. — @ —	NAILS—Wrought, 6d to 20d. Φ lb. — 10 @ 14
Brandywine — @ —	Cut. 4d to 40d. — 4 $\frac{1}{2}$ @ 4 $\frac{1}{2}$
Georgetown. — 5 87 $\frac{1}{2}$ @ 6 —	PLASTER PARIS— Φ ton. — 2 37 $\frac{1}{2}$ @ 2 50
Baltimore City Mills. — 5 87 $\frac{1}{2}$ @ 6 —	PROVISIONS—Beef, Meas, Φ bbl. 12 25 @ 13 —
Richmond City Mills. — @ —	Beef, Prime. — 8 25 @ 8 75
Richmond Country. — 5 87 $\frac{1}{2}$ @ 6 —	Pork, Meas, Ohio, new. — 14 12 $\frac{1}{2}$ @ 14 25
Alexandria, Petersburg, &c. — 5 87 $\frac{1}{2}$ @ 6 —	Pork, Prime, Ohio, new. — 11 25 @ —
Rye Flour — 4 — @ —	Lard, Ohio. — 10 @ 12
Corn Meal, Western and State. — 2 50 @ 3 —	Hams, Pickled. — 7 @ 7 $\frac{1}{2}$
Corn Meal, Jersey and Brandywine 3 25 @ 3 50	Shoulders, Pickled — 6 $\frac{1}{2}$ @ 6 $\frac{1}{2}$
GRAIN—Wheat, White. Φ bush. 1 15 @ 1 20	Sides, Pickled. — @ —
Wheat, Red and mixed. — 1 — @ 1 18	Beef, Smoked. — Φ lb. — 10 $\frac{1}{2}$ @ —
Rye, Northern, new and old. — 74 @ 76	Butter, Orange County Dairy — 19 @ 20
Corn, Jersey and Northern yel. — 63 $\frac{1}{2}$ @ 64	Butter, Western Dairy — 14 @ 16
Corn, Southern, yellow. — @ —	Butter, Grease. — @ —
Corn, Western, yellow. — 63 $\frac{1}{2}$ @ 65	Cheese, in casks and boxes. — 7 @ 7 $\frac{1}{2}$
Oats, Northern — 44 @ 46	SEEDS—Clover. — Φ lb. — 7 @ 7 $\frac{1}{2}$
Oats, Jersey — @ —	Timothy. — Φ tierce 17 — @ 20 —
HAY—North River in bales, Φ 100 lb. — 45 @ 50	Flax, Rough. — @ —
HEMP—American, dew-rotted. ton 140 — @ 150 —	SOAP—New-York. — Φ lb. — 4 @ 5 $\frac{1}{2}$
" " water-rotted. — 200 — @ 250 —	TALLOW—American Rendered — @ 10 —
HOPS—1847. — 14 @ 16	TOBACCO—Virginia. — @ lb. — 3 @ 7 $\frac{1}{2}$
IRON—American Pig, No. 1. — 32 — @ 35 —	North Carolina. — @ —
" " Common. — 27 50 @ 30 —	Kentucky and Missouri. — 3 @ 7 $\frac{1}{2}$
LIME—Thomaston. — Φ bbl. — 80 @ 83	WOOL—Am. Saxony, Fleece, Φ lb. — 40 @ 45
LUMBER—Boards, N.R., Φ M. ft. cl. 35 — @ 40 —	American Full Blood Merino — 35 @ 38
Boards, Eastern Pine. — @ —	American $\frac{1}{2}$ and $\frac{3}{4}$ Merino. — 30 @ 34
Boards, Albany Pine. — Φ pce. — 12 @ 21	American Native and $\frac{1}{2}$ Merino. — 26 @ 28
Plank, Georgia Y. Pine. Φ M. ft. — 27 50 @ —	Superfine, Pulled Country. — 32 @ 34

